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# FINANCIAL TIMES

### Sweet smell of success at Unilever, Page 17

Cadbury

**buys 30%** 

of Dr

No. 30.015

EUROPE'S BUSINESS NEWSPAPER

Tuesday August 26 1986

D 8523 B

# Cameroon President says volcanic gas killed 1,200

BY OUR FOREIGN STATE

### US denies People attempt Express to provoke grounds Libya Frontier

been planned for many months.

World news

Although Libya denounced the manoeuvres as a terrorist plot and mind when mounting the exercise. Planning bad started before the tension that culminated in the US bombing raid on Libya in April.

The Pentagon described the ma noeuvres as routine and said no US or Egyptian aircraft or ships would enter the disputed Gulf of Sirte or cross the "line of death" designated by Colonel Muammer Gadaffi, the Libyan leader. Page 2

### Bhutto faces charges The Pakistan Government is erpected to decide next week what charges to bring against Miss Bena-

zir Bhutto and other opposition leaders who were jailed two weeks ago when violent demonstrations swept through the country protest-ing against the rule of President Zia ul-Haq. Page 3

### Tamil talks threat

Renewed separatist violence at the weekend in which 10 people were killed has threatened peace talks between the Sri Lankan Government and moderate Tamils.

### Sikhs arrested

Indian police arrested two Sikhs su-spected of assassinating General Arun Vaidya who commanded the army when the Golden Temple in Amritsar was stormed in 1984.

### Fire penalties sought

French politiciens sought stiffer penalties for arson after weekend fires swept through big tracts of scrub forest in the south-east, caus-ing five deaths and leaving a trail of burnt houses and charred bush. Page 3.

The Reagan Administration insist-ed joint US-Egyptian military ma-noeuvres that began in tha Mediter-ranean on Sunday were not in-tended to provoke Libya and had been planned for many months. did not agree to a new wages deal.

Business summary

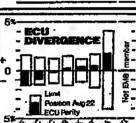
Page 14 Mandeuvres as a terrorist plot and Moscow criticised them as being "openly provocative," the Pentagon said the US never had Libya in mind when mounting the exercise. Mandeuvres as a terrorist plot and SOUTH AFRICA: Capital outflow amounted to R2.64bn (\$1.02bn) in the first half, the country's Reserve Bank said. Page 14 Johannesburg shares rose to another record on steady support for gold and indus-trial issues. Page 30

> EUROPEAN Monetary System: Sharp falls by the Danish krone and French franc – and the D-Mark's continued improvement – gave rise to renewed speculation of a realignment within the EMS last week. The Bundesbank was under

mounting pressure to cut its dis count rate to belp the weaker currencies. The krone was nt the bottom of the system, close to its divergence limit in Ecu terms and its cross rate limit against the D-Mark. Currencies, Page 19

# EMS Aug 22 , 1988





The chart shows the two constraints

which no currency (except the lira) may move more than 2% per cent

AT LEAST 1,200 people are feared to have been killed by toxic gas seeping from a remote volcanic lake in north-west Cameroon, the coun-try's President Paul Biya said yesoccurred on Friday, have been evacuated by helicopter, but most are reported to be still in the affected area, around Lake Nios about 250 terday. Mr Georges Ngango, Information Minister, said earlier that military reports from the scene estimated a death toll of at least 2,000. miles north-west of Yaounde, the capital

Early rescue attempts had been hampered by a lack of breathing apparatus and oxygen. Mr Ngango said that between 200

and 300 people suffering from the effects of the gas fumes were being treated in hospital and that army teams were searching the 4 sq mile team arrived in the country yesterdisaster area for more victims.

zerland bave also pledged assistance. The Foreign Office in London said last night thet Britain would give "speedy and sympathetic" con-sideration to any request for aid, al-though no official appeal had been

received system.

President Biya, who visited the area on Sunday, has declared it a official four-day visit to the West Afdisaster zone and appealed for in-rican country yesterday, took a 20-ternational aid. A French medical member army medical team equipped with oxygen and brea-

Japanese

. Some survivors of the leak, which day and Britain, the US and Swit- thing apparatus to help with rescue been the cause of a similar inciden in the same mountain chain in 1984

The Government said that the gas which caused the disaster was hydrogen sulphide. It smells like rotten eggs and can paralyse respiration if breathed in sufficient con-centrations. The gas, which is often found in volcanic areas, inhibits the functioning of the central nervous

French and US scientists said. however, that the gas could bave been either carbon monoxide or carbon dioxide, thought to have

in the same mountain chain in 1984. in which 36 people died.

The leak is believed to have been **Pepper for** caused by an eruption or an under-ground landslide on the bed of the lake which lies in a volcanic crater. \$17.5m Three villages are thought to bave been affected and the 10,000 inhabitants of the nearest large

By Terry Povey in London town, Wum, were being evacuated. CADBURY SCHWEPPES, the UK The Government has established a crisis centre at Bamenda, capital of the English-speaking north-western province.

confectionary and soft drinks group, has expanded its US interests by buying a 30 per cent stake in the Dr Pepper Company, makers of the secret formula drink which has 7 per cent of the US soft drink mar-Mexico plans to ket. In June, Cadbury-Schweppes spent \$230m buying the Canada Dry and Sunkist soft drinks busicadbury Schweppes said yester-day that the group had concluded a \$17.5m deal with financial institudraw on \$1.6bn

### BY PETER MONTAGNON IN LONDON

MEXICO hopes to start drawing many executives are away on bolithis week on the \$1.6bn bridging day

loan agreed by leading industrial countries and banks to bolster its

Treasury as well as the central banks of industrial countries and

Commercial banks which are to lend \$500m have made their portion of the loan conditional on progress first being achieved in syndicating some \$6bn in fresh, medium-term credits to the Government of President Miguel de la Madrid.

Nonetheless, the fact that more than \$1bn should become available to Mexico this week will help to secure a continued flow of interest payments to bank creditors while the rest of the package is negotiat-

tween Mr Angel Gurria, the senior Mexican Finance Ministry official esponsible for debt negotiation, and leading creditor banks, were mainly designed to pave the way for the start of drawings on the

tor institutions, each of which has

tions and the Dr Pepper manage ment to take the stake as part of a leveraged buyout. "Our business is bridging loan being geared very strongly towards confectionary and soft drinks it snid.

Last week, a consortium consisting of Shearson Lehman Brothers, part of the New York investment bank, together with Hicks and Hallast las, a Dallas investment company, and members of the management of Dr Pepper, announced that they had purchased the company from Forstmann Little for \$418m. Earlier this month, Coca-Cola was forced to drop a \$470m takeover plan for Dr Pepper after anti-trust objections.

Cadbury Schweppes said the in-vestment in Dr Pepper was strategic and there were no plans to purchase control.

Mr Thomas Hicks of Hicks and Hallas confirmed this, adding that "there is no agreement for Cadbury Schweppes to increase its holding and no plans exist to go public." Cadbury Schweppes is to have two seats on a planned nine-member Dr Pepper board.

Dr Pepper will have four sharebolders under the new scheme bankers' acceptance loans raised by agreed late on Friday. According to Pemex, the state oil monopoly, to Hir Hicks, his company together tailing \$3bn and £250m. Re- with the management, Cadbury financing these operations could prove extremely difficult as they are specifically backed by Mexico's dwindling oil revenues. cent stake.

Most of last week's discussions loans falling due under Mexico's Fiamong the consortium's members corca scheme for rescheduling private sector debt. Though only \$50m centred on the debt financing arof these loans fall due this year, the rangements for the buyout. To comthe de

Shearson Lehman lent Dr Pepper

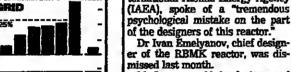
loan of \$240m was made to the in-

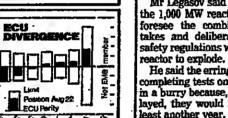
vesting group by Bankers Trust.

# Soviets admit design flaws at Chernobyl

### **BY DAVID FISHLOCK IN VIENNA**

MAJOR FLAWS in the design must share the blame with human error for the nuclear reactor catastrophe at Chernobyl, it was disclosed here yesterday at the international 'post nortem" on last April's accident. Academician Valery Legasov, a eading Soviet nuclear scientist,





would have been easy to prevent technically, he said. This is a great The chart shows the two constraints on European Monetary System, ex-change rates. The upper grid, based on the weakest currency in the sys-tem, defines the cross rates from fault on our part." he told nuclear experts in a five-hour account of the accident and its aftermath.

The Soviet Union will lose 10 per cent of all electric power produced by its RBMK-type reactors next year while it makes changes to make them safer in the wake of the Chernobyl accident, Patrick Blum in Vienna heading a large Soviet delegation to the meeting being hosted by the In-ternational Atomic Energy Agency (IAEA), spoke of a "tremendous psychological mistake on the part

writes. Mr Valery Legasov, lead-ing the Soviet delegation to a special meeting of the Interna-tional Atomic Energy Agency, said the design alterations would be costly. "Whether (they are) economic or not is a questio that will be resolved in practice," he said.

nissed last month. Mr Legasov said the designers of He redressed an imbalance in the 1,000 MW reactor had failed to which Moscow previously had heaped most of the blame on operaforesee the combination of mistakes and deliberate violation of tors who, he said, were no longer safety regulations which caused the

While he gave no indication that He said the erring operators were completing tests on new equipment in a burry because, if they were de-layed, they would have to wait at Moscow was ready to shut down its RBMK reactors, he made it clear that they were giving priority in new construction to their 1,000 MW least another year. The possibility of an accident should have been foreseen and pressurised water reactor (PWR) and to newer designs

In the case of one of the errors operating the reactor with as few as five control rods in place - he said:

"No one in the whole world, includ-He said his delegation had come try", was allowed to operate this

to pay 'dump' levy on copiers By Tim Dickson in Brussels

THE European Commission yester day announced anti-dumping duties of up to 15.8 per cent on plain paper Japanese photocopiers, after one of the biggest investigations of its kind launched from Brussels. All

the major Japanese manufacturers will be affected, including Canon Ricoh, Toshiba and Minolta. The duties, which are provisional and come into effect tomorrow for at least four months, compare with

alleged "dumping margins" (the dif-ference between domestic and export prices) of between 7 and 69 per cent, although most were found to be in the 20-45 per cent range. The move, which is likely to be fiercely contested by the compa-

nies, is a further sign of the Commission's determination to pursue what it sees as unfair Japanese pri-cing practices. In the past couple of years, anti-dumping duties have been imposed on Japanese electronic typewriters, excavators, roller

bearings and outboard motors. The action is also bound to raise fears that the Japanese companies will circumvent the problem by stepping up their European assem

39

42

16

Japanese manufacturers' share of

the Community photocopier market

began to grow in the mid-1970s with a sixfold increase in exports to 272,000 units (or 80 per cent) re-corded between 1975 and 1981. This

grew to about 600,000 units last

year, which according to the Com-mission represents 85 per cent of machines sold in EEC member

The other 15 per cent is dominat-

ed by Rank Xerox, which together with four other Community produc-

ers brought the anti-dumping com-

plaint through the Committee of

European Copier Manufacturers. One of these - Develop of West Ger-

many - was subsequently taken over by the Japanese company Min-olta and withdrew its complaint.

According to the Commission, its

investigation, which covered the pe-

riod January to July last year

showed that Japanese manufactur-

ers were placing machines on the

Community market "at substantial-

ly below their normal value in Japan, causing serious damage to

manofacturers within the Commu-

nity." The case was complicated by the

fact that three of the Community

manufacturers (Rank Xerox, Oce

and Olivetti) were themselves im-

porters of certain Japanese ma-

chines. In the case of Oce and Oliv-

insignificant in volume terms and.

for the moment at least, Rank Xer-

ox - despite its Japanese associate Fuji Xerox - is to be considered

part of the Community's industry

in assessing the impact of the

etti, the purchases were considere

15.8 15.8 15.3

JAPANESE PHOTOCOPIERS

Company (%) Canon Copyet

hiroku

finished products.

Koni

Kyocera Matsushit Minolta

liite Ind

Sanyo Sharp Toshiba

states.

Ricoh

reserves while it negotiates longer term assistance in servicing its \$98bn foreign debt. The drawings will come from the \$1.1bn to be provided by the US

five Latin American nations.

bridging loan. Though the banks do not at pres-ent have to make cash available, the formal consent to the bridging operation of about 50 leading credi-Antidumping duty (%) 15.8

Talks last week in New York be-

Bankers who attended week's talks said yesterday the last burdles should soon have been cleared. With the bridging loan operative, they will then be able to concentrate on the main rescue package. So far, these talks bave been very

preliminary, but they have already thrown up a number of complicating factors which are likely to make the deal especially bard to complete. Among these are:

• The contingency funds due to be made available to Mexico in the event of a further collapse in oil prices or its failure to meet economic growth targets.

 The treatment of a \$950m princirepayment still outstanding from last year and, bke the contingency money, not included in the ba-sic \$6bn fresh loan figure.

The need in addition to refinance dwindling oil revenues.

The probable need to refinance

### Soweto student riot

South African police fired with shotguns at students in Soweto af-ter a patrol car was pelted with stones. One person was killed and eight wounded.

### Unemployment rises

The number of jobless in the 12-nation European Community rose by 175,000 in July compared with June, largely because of school leavers, the community's statistics office biez

### Shcharansky reunion

Former Soviet dissident Anatoly Shcharansky arrived in Vienna from Israel for a reunion with his 77-year-old mother, brother and other family members who left the Soviet Union to join him in Israel.

### Bridge building

Denmark and Sweden opened talks on building a bridge or tunnel link between the two countries.

### Food aid

The United Nations Food and Agriculture Organisation has approved food aid worth nearly \$26.2m for refugees in Pakistan and Central America and victims of strife and poor harvests in Lebanon.

### Ugandan budget

In its first budget aimed at stimu-lating domestic production, Ugan-da's National Resistance Movement government discarded free market policies advocated by ex-President Milton Obote for a more managed approach to the economy. Page 2

### Out of service

ų.

A gang which forged Iranian military service termination cards and sold them for up to \$75,000 each has been broken up.

The lower chart gives each curren-cy's divergence from its "central rate" against the European Curren-cy Unit (ECU), itself a basket of Eutopean currencies.

TOKYO share prices surged on widespread bargain bunting, push-ing the Nikkei index up 432.78 points, to 18,565.81, a record one-day gain which wiped out more than half the losses of the last three sessions. Page 30

WALL STREET: At 3pm, the Dow Jones industrial average was 10.97 lower at 1,878.63. Page 30

LONDON stock markets were closed for a holiday. asides.

DOLLAR closed in New York at DM 2.0415 (DM 2.0410), SFr 1.6435 (SFr 1.6445), FFr 6.69 (FFr 8.6875) and Y153.70 (Y153.15). The London market was closed. Page 19. STERLING closed in New York at \$1.4805 (\$1.4975). The London market was closed. Page 19

GOLD: The London market was closed. In Zurich the price was fixed at \$360.50 and in Paris it ended at \$386.50. In New York the December Comex settlement was \$386.50

against \$390.60 on Friday. BANK OF ENGLAND is planning an experimental auction of govern-ment securities, similar to the US Treasury's bond nuction. Page 14; details Page 16

ALBERT WOJNILOWER is to step aside as chief economist at First Boston, the US securities firm, although he will continue as n managing director and senior adviser. Men and Matters, Page 12

FRUEHAUF, US automotive parts and truck company, agreed to n sweetened \$1.12bn leveraged buy-out hid led by Merrill Lynch, Wall Street securities firm, and Fruebauf's senior managers. Page 16

UNILEVER, Anglo-Dutch food and detergents group, has raised its stake in Naarden, Dutch flavours and fragrances group, from 40 per cent to 49 per cent. Background,

constructive discussion," of Soviet Mr Legasov admitted several cruplans for improving reactor safety. cial design weaknesses in the It has over 15,000 MW of this type of RBMK. They included its inherent eactor in service. Instability, owing to the possibility Mr Legasov illustrated his ac-

count of the accident with a colour tive void coefficient", its need for a video showing glimpses of the red-hot reactor core before it was re-plexity of its plumbing and the fact sealed, and a graph which starkly that its graphite core normally ran presented the final huge surge in very hot.

reactor power, from near-zero to 50 Lord Marshall, chairman of the per cent, before the steam explo-sion which blew off its roof. UK Central Electricity Generating Board, interviewed later, said Mr sion which blew off its roof. His account, although basically Legasov's list of design weaknesses the version recorded in the official tallied very closely with one pro-Soviet accident report delivered to duced in Britain shortly after the the IAEA 12 days ago, was drama- accident to demonstrate the basic tised by the Soviet scientist's own weaknesses of this design.

Nuclear test ban, Page 3 • •

# Fermenta's unions reject Montedison

### BY KEVIN DONE IN STOCKHOLM

LOCAL TRADE unions in Fermen- the Montedison takeover. The ta, the Swedish chemicals and bio-workforce has two representatives hnology group, yesterday reject- on the board.

ed the planned takeover of the com-pany by Montedison, the Italian sited Sweden last week to try to win chemicals and health care group, union nporoval. However, it became the company into fresh uncertainty. Trading in Fermenta shares was suspended until further notice by to the deal because Fermenta had the Stockholm stock exchange its own unique development poten-negating devices the Marter tiple and a built in the terment pending clarification of the Monte-tial and a bright industrial future: they wanted him to remain in the In July, the Italian company executive management and Monte-agreed in principle with Mr Refaat dison had turned down n union sug-El-Sayed, the Egyptian-born Fer- gestion that it should initially

acquire only a minority stake. menta group chief executive, to buy his controlling stake of some 78 per his controlling stake of some 78 per Mr El-Sayed had informed cent of the votes and 44 per cent of Montedison of the unions' rejection the equity. The takeover would be and was waiting for a response worth at least SKr 3bn (\$441m). from the Italian concern. In Milan The deal was subject to the ap-proval of the workforce, the Fer- "surprised at the view of the Fermenta board and the Swedish Gov- menta trade unions." It said the Montedison delegation had reas-The Fermenta board, which met sured Swedish union leaders that

Continued on Page 14 dumped imports."

Cars: the US rediscovers the Anglo-Irish agreement: World Trade ..... 4 Letters...... 13 Technology: where robots Lombard: all tanked up but stalk the floor ...... 10 nowhere to go ...... 13 Editorial comment: the oil Lex: UK brewers: Australian market; directors ...... 12 entrepreneurs ....... 14 Space: return of the Aerospace: disposable rocket ...... 12 Survey ...... Section III 

ernment.

more than \$480m outstanding to 15.8 15.8 15.8 15.8 15.8 15.8 Mexico, was necessary before the credit from other sources could be

This has proved a time consuming process since it has been necessary for each bank to obtain top level approval for the deal. Particularly complicated is the situation facbly operations. The Commission. ing London-based consortium banks with a wide range of sepahowever, is understood to be looking at ways of applying the duties to rate shareholders, each of whom mported components as well as the has to be consulted at a time when

jumps to \$2.5bn in 1988. Altogether, bankers say this \$118m which will soon be recovered means they are looking at a total through an issue on non-convertible subordinated loan stock. A further They said Mexico had so far made no mention of interest rate concessions to further bolster its finances, but a package of this size with interest concessions on top would be exceptionally hard to assemble.

Venezuelan debt, Page 2

In 1985, 19 per cent of Cadbury Schweppes CI.9bn (S2.8bn) sales were in North America but the region turned in a £5.6m trading loss for the group. Following the loss, n **Continued on Page 14** 

**OPTIONS. FUTURES.** HOW TO KNOW IF YOU ARE MAKING THE RIGHT CHOICE. How do you know that you are paying the right price? Or dealing in the right market? Or, indeed, talking to the right broker? With options especially, pricing is an imperfect art. The same option may be worth more to one investor than another. It's a thoroughly complicated business, and expert help is vital. Hence the importance of dealing through the right broker: At Phillips & Drew Futures Ltd. we were founder members of LIFFE. And we provide a comp-

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# **Phillips & Drew Futures Limited**

# vs/n

two weeks ago to consider the deal, no jobs would be threatened by a bas been forced to adjourn twice be- Montedison takeover. cause of trade union opposition to

### Page 17 **CONTENTS** -

# **OVERSEAS NEWS**

### KAMPALA BUDGET ABOLISHES DUAL EXCHANGE RATE

# Uganda discards Obote's policies

### after union

John Deere

shuts plants

calls strikes

By William Hall in New York

JOHN DEERE, the world's biggest farm equipment manu-facturer, wbich is expected to

post its first annual loss in

over 50 years, yesterday closed all but one of its US factories after its workforce began

selective strikes at three key

The United Auto Workers (UAW), the biggest of Deere's unions, ordered its members to

strike at three facilities at midnight on Friday, and Deere said yesterday that it had been forced to close all of its union

organised plants as a result. The three plants supply key equipment for other plants.

However the union described the move as a lock-out and ordered its workers to turn up

for work yesterday. About

12,500 workers are directly affected by the dispute. Another 9,000 union members are 9,000 union members are currently laid off but have the

Deere is continuing to operate a non-union plant al Horicon, Wisconsin, and said

that Its overseas operations are

continuing to work normally.

However, its US plants supply

its overseas operations with parts and if the dispute con-

tinues for long, then it is likely

cause further disruption

right of recall.

to

plants.

Milton Obote for a more managed approach to the economy.

Abolishing the dual exchange Abolishing the dual exchange rate introduced as a compro-mise measure in May, the Government has acted to neg the shilling at the rate for priority imports of 1.400 abillings to one US dollar compared with the former market exchange rate of 5,000 shillings to the dollar. The two-tier system was introtime.

over the launching of a package of economic measures sbortly

to combat the unexpected

growth of inflation in the Argentinian economy in July

Economic ministers held lengthy discussions over the weekend to analyse the prin-

cipal causes of the acceleration

and August.

Sanwa's

added reach in

Japanese finance can do a lot for your business

ment of Mr Yoweri Museveni's Under this, the priority ex- ends meet with the rising cost National Resistance Movement change rate applied only to of labour end fuel. Western (NRM) has discarded the free essential imports, foreign debt diplomats also expressed market policies advocated by repayments and exports chan- doubts saying the big question Uganda's former President nelled through public corpora- was whether it would affect the nelled through public corpora-tions such as the Coffee Market-ing Board. was wbether it would affect the parallel market. Hard currency on the black market fetched ing Board.

The system rapidly bit the prices of many goods imported privately, contributing to inflation rate estimates at up to 200 per cent. The drastic re-valuation will be accompanied by the introduction of a new currency in several months'

tightening

controls.

of bis Machinea

economic team

sumer items, especially food-stuffa, a continuation of a policy of regular mini-devaluations and further

of

Following the announcement

with greater coberence baving

appointment Dr aaid that the team "will now act

IN ITS first budget the govern- duced in a mini-budget in May, will be very difficult to make budget's real implications and ment of Mr Yoweri Museveni's Under this, the priority ex- ends meet with the rising cost complained of rising fuel National Resistance Movement change rate amplied only to of labour end fuel. Western prices. The petrol price rase two to three times the official by war and an increased wage rate yesterday. The black bill for the police and army, market bas been boosted in The result was a deficit of recent months by a shortage of 104.6bn shillings (\$5m), he said.

hard currency. current year, to be financed by borrowing, would be 349.7bn shillings (\$249m), with expen-diture at 1,127.5bn (\$805m) It also remains to be seen whether the new rate will lower the cost of consumar goods.

Local sbopkeepers automatictarket exchange rate of 5,000 In Kampala one investor ally raise prices on Saturday hillings to the dollar. described the new exchange afternoona and many people The two-tier system was intro- rate as nightmarish, saying it appear baffled about the

and economists gethered for the inauguration of an Argen-

current seasonal food ahortages.

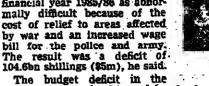
claims that the Austral Plan,

Government's economic

He acknowledged that the inflationary reaction was greater than predicted but dismissed

ar mini- tinian banking conference further yesterday that the rise in the monetary inflation rate was a result of

by 100 per cent last week. Mulema described financial year 1985/86 as abnormally difficult because of the cost of relief to areas affected



banks opening rurst branches are to be abolished from the start of 1987. Corporation tax on financial institutions has risen by 10 per cent and in-come tax on commercial activities will double.

exceeding revenue at 777.8bn (\$556m), be added. Concessions to commercial Argentine ministers discuss economic package

THE NOMINATION of Dr Jose in the rata of inflation and to clearly defined the monetary stabilisation programme, had Luis Machinea, the deputy adopt measures which are ex-Economy Minister, as the new pected to include a relaxation president of Argentina's central of import controls on basic con-bank, bas raised expectations sumer items, especially food-are the launched as the fiscal deficit black market in foreign exchange and credit dealings that have missiroomed over the past year due to tight restrictions on credit creation by the official banking system. Mana of the black marker ago when the Austral Plan was launched as the fiscal deficit and balence of payments are now under control. This gives Many of the bleck market operators stand to lose heavily us room for manoeuvre to atabilise prices," he said. on unsupported futures deals in US dollars which have to be closed on Friday. The 30 per cent drop in the value of the Austral against the US dollar this month has left many He added that Argentina's

financial system also needed "cleaning up" through the "institutionalisation of transactions," a reference to the dealers heavily exposed.

### Venezuela to pay \$750m of foreign debt this year BY JOSEPH MANN IN CARACAS

Venezuela's Ministry of Finance said this weekend that the Government planned to pay foreign banks a \$750m (£500m) principal payment before the end of this year, :

end of this year, Mr Jorge Marcano, Finance Director at the Ministry, also said he did not want to com-ment on whether the Govern-ment would ask foreign banks to loan it \$600m so that the \$750m principal payment could be made as planned. He added that it was not appropriate to that it was not appropriate to mix together comments about

for Venezuela to make a \$750m. the Venezuelan Cabinet.

HIGH-LEVEL official at principal payment at the time enezuela's Ministry of Finance the restructuring officially uid this weekend that the becomes operational, schaduled overnment planned to pay reign banks a \$750m (\$500m) prices fell eerlier this year, the incipal payment before the Government. had second thongbts about making the Mr Jorge Marcano, Finance irector at the Ministry, also id this the finance accord.

Now, however, it appears the administration of President Jaime Lusiunchi intends to comply with the lump-sum pay-ment. It is still not clear, though, whether the Govern-ment will ask, banks for assist-nee, in making this payment

mix together comments about an agreed-upon loan payment and a possible future loan. Mr Marcano's comments that developed after the Vene-zuelan Government and foreign ing agreement on February 22. The agreement, covering about \$20.9bn in public sector debts and financial institutions, called for Venezuelan Cabinet.

Angolan government Fapla

• A 28-year-old black man was killed and eight injured yester-day when police fired birdshot at a crowd of 500 people who were stoning their vebicle, AP reports from Jehannesburg.

The clash occurred outside a high school in Johannesburg'a main black township, according

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wide client base The Sanwa Bank, one of Japan's top financial institutions, has always stressed the importance of providing a wide range of services without bias to a wide spectrum of industries. With a corporate client base that is now among the largest and most diversified in Japan, Sanwa is uniquely positioned to assist overseas companies of all

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**Pentagon denies** 

provoke Libyans

yesterday insisted that joint US fighters would stage a mock Egyptian military manoeuvres attack against Egyptian ter-that began in the Mediterranean ritory to allow Egyptian F-16a

American carrier-based F-14

to practice defence, the Penta-

gon said. One official was quoted as saying that Col Gadaffi had

saying that Col Gadaffi had "gone off his rocker again" and was prepariog fresh ter-rorist atlacks against US targets in Europe. Other observers, however, polnted out that it was unlikely that Egypt would join in manoeuvres intended to provoke Col Gadaffi. Syria's President Hafez al-Assad continued talks in Libya yesierday aa a leading Damascus newspaper de-nounced joiot US-Egyptian military exercises in the Mediterranean, reports Reuter. "America must understand that beating of the war drums

that beating of the war drums will never intimidate Syria and

will never intimidate Syria and the Arab liberation movement." al-Hasth, mouthplece of the ruling Baath Arab Socialist Party, said. Assad'a surprise depanture on Sunday for talks with Col Gadaffi coincided with the start of the air and sea maneouvres. the first such joint exercise in 15 months

attempting to

BY REGINALD DALE, US EDITOR, IN WASHINGTON

THE REAGAN Administration

on Sunday were not intended to provoke Libya, end had been

Although Libya haa denounced the manoeuvres as a terrorist

plot, and Moscow has criticised them as "openly provocative."

a Peotagon official said the US had never had Libya in mind

in mounting the exercise. Planning bad started before the

outbreak of tension that culmi-nated in the US bombing raid on Libya in April, he said. The Pentagon described the manoeuvres as "routine" and

manocuvres as "routine ' and said no American or Egyptian aircraft or sbips would enter the disputed Gulf of Sirte or cross the "line of death" designated by Col Muammer Gadeffi, the Libyan leeder.

Gadem, the Libyan leeder. The exercise, code-named Sea Wind, was intended to under-

score continuing security ties between the US and Egypt,

following strains in the relation-

ship last year after the US

forced an Egyptian airliner carrying the Achille Lauro blgh-jackers to land in Sicily, US

officials said.

planned for many months.

industries in mergers and acquisitions, joint ventures, investment consultation, etc.

### Extensive domestic and overseas operations

With more than 260 offices, Sanwa's domestic network is one of Japan's most extensive. Sanwa specialists across the country work in close cooperation with the Bank's vast overseas network

in marketing advisory and other services to its growing international clientele.

### The world's 6th largest bank

Forward-looking banking made Sanwa what it is today: the world's 6th largest bank\*, with total assets of over US\$160 billion and the highest credit rating in international finance. Backed

also by subsidiaries and affiliates, Sanwa bankers are now more active than ever in providing the specialized financial and marketing assistance that overseas companies require in their dealings with Japan. Just ask your Sanwa banker. And see what Sanwa's added reach in Japanese finance can do for your business.

Sanwa bankers are working for you everywhere.

///// Sanwa Bank

# S. Africa and Mozambique clash over Nkomati Accord

forces.

BY ANTHONY ROBINSON IN JOHANNESBURG

CHARGES AND counter charges are flowing again be-tween South Africa and Mozambique over alleged in-fringements of key sections of the March 1984 Nkomati Accord under which Mozambique under-took to prevent the African National Congress (ANC) operating from the country and South Africa agreed to cease support for Mozambican took to prevent the African National Congress (ANC) operating from the country and South Africa agreed to cease support for Mozambican National Resistance (MNR) rehele

rebels. South African security forces believe ANC guerrillas in-volved in planting landmines in the Eastern Transvaal bave been moving through Swaziland from Mozambique while Mozam-blcan sources allege that the MNR bas received additional militery supplies for their cam-paign to interrupt the road, rail and oll pipeline links between Zimbabwe and the port of Beira. rebels.

main black townsup, according to the Bureau for Information, wblch asid those injured ranged in age from 14 to 25. Earlier, the Bureau said a five-year-old Beira. Mozambican allegations that black girl aslaep in the bome supplies have been airlifted to of a town councillor was killed WNR rebels from South Africa by a hand grenade thrown meet the standard refusal of through the window of her the South African authorities room.

### All-out attack on Iraq urged

On Iraq urged Iran's Parliamentary. Speaker Ali Akbar Hashemi Rafsanjani has called for an all-out atta-on Iraq to prevent Iran's Guif war enemy from reorganising its forces, the Iranian news agency IRNA reported et the weekend. Reuter reports that Mr Rafsanjani told a Tehran seminar that Iraq should be given no chance to reorganise its forces and that Iran, "by launching an all-out attack, should deprive the enemy from carrying out its mischlefs." He denounced what he termed imperialist plots "to force the Islamic revolution to kneel down." kneel down,"

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\*1985 Institutional Investor survey

# **OVERSEAS NEWS**

### 3

# Wheat producers assail EEC, US export subsidies

BY RICHARD HUBBARD IN CANBERRA

called on the EEC and the US of payments to reduce and eventually re-move production and export ings due partly to the lower subsidies and forecast that the prices for leading agricultural crisis facing international grain exporters wes likely to deepen the subsidised trada war

world wheat exports, with the US and European Community accounting for most of the

restrained

Mr Charles Mayer, the Cana-dian Minister placed the blame for the current wheat crisis firmly at the feet of the EEC. The US is at least talking

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said. Mr Dawkins said the three nations rejected market shar-ing, as proposed by the EEC, as a long-term solution to the created the problem," Mr Dawkins said.

The three wheat exporters Mr Dawkins might have been held preliminary discussions referring to an EEC committee ahead of a 14-nation conference decision to make available for of agricultural trading nations export 850,000 tonnes of soft due to begin discussions today. wheat in store in the Com Brazil, Chile, Colombia, Fiji, munity

### **Test freeze gives US** advantages, says Moscow

THE chief of staff of the Soviet nuclear programme. armed forces, Marshal Sergei "We had to accept a certain Akhromeyey, said yesterday damage to ourselves, hut we Moscow's nuclear test mora-took into account that this torium had given the US some damage was tolerable," Mr advantages but had not altered Akhromeyev told a news the East-West military balance, "onference. "Barter trenurty from Moscow." "The US had" conducted 18

advantages but had not altered Akhromeyev told a news the East-West military balance, conference. Renter reports from Moscow. The US had conducted 18 "Mr Akhromeyev said the nuclear tests since the Soviet Kremlin's civilian leadership moratorium took effect, includ-an dthe military establishment ing three unannounced low-had decided to extend the test yield tests in Angust 1985, freeze until January 1 because autumn 1985 and spring 1986, the political benefits out- he said. The test freeze began weighed the cests to the Soviet on August 6 last year.

bringing forward legislation to widen employee participa-tion in both the management CANADA came under intense Hungary, Indonesia, Malaysia, presure to adopt the hardline New Zealand, the Philipplnes vlewa of Australia and and Uroguay are also attending Argentina against agricultural the conference, which aims to submission and the time and the conference with a second the second secon of industry and in the profits it makes. vlewa of Australia and and Uroguay its which aims to Argentina against agricultural the conference, which aims to subsidies by the US and the ensure that agriculture gains European Community at a top priority at next month's special meeting of the three General Agreement on Tarlfs leading wheat exporting nationa and Trade (Gatt) talks at Punta in Cairns, north-east Australia, del Este in Uruguay. yesterday. The conference was called by the Australian Government, finalise details of two decrees to be put before the Cabinet early next month which reflect long-held Gaullist ideas on encouraging worker ownership and profit-sharing

France

speeds

profit share

legislation

By David Housego in Paris

schemes in industry.

schemes in industry. At the same time, in push-ing forward the legislation now, the right-wing govern-ment of Mr Jacques Chirac, is anxious to show that it is no less progressive than the Socialists over labour issues.

The proposals have received a mixed welcome from trades unions—with the

more left wing unions heing reluctant to be drawn into co-responsibility for indus-

trial management. Of the two decrees, the first

will allow worker representa-tives to have np te a third of the seats on company boards. The measure will be voluntary and at the initia-tive of companies. It requires

the approval of a two-thirds

majority in the general assembly. The new law will replace

and extend legislation brought in by the Socialists

to "democratise" the public

sector after the nationalisa-tions of 1982. This law, which

required nationalised companies to have work repre-

sentatives on their boards,

THE FRENCH Government is

Ministers met vesterday to

yesterday. Mr John Dawkins, the the Australian Government, Australian Trade Minister, which is facing severe balance called on the EEC and the US of payments problems hecause to reduce and eventually re-to reduce and reduce and eventually re-to reduce and eventually re-to reduce and reduce a

Crisis facing international grain exporters wes likely to deepen in the next few months. The three nationa together produce around 44 per cent of Americans as one key cause of world prices for agriculture. In his opening address to the

After their meeting yester-day the three nations agreed that in the ahort-term produc-tion and release of surplus the US and EEC had to be restrained. system.

• The European Community denied yesterday that it had hettered an offer hy the US to sell 4m tonnes of subsidised "The US is at least talking wheat to the Soviet Union, about reducing production," he Reuter writes from Brussels.

The denial was issued by EEC officials in response to a state-ment by Mr Dawkins that the EEC had countered Washing-ton's offer with a better one. problem. "The obligation The US announced this rests with those who have month that it was offering engaged in market subsidies and Moscow the wheat with a \$13 a Moscow the wheat with a \$13 a tonne subsidy.

will progressively expire as companies are privatised. The intention of the second EEC grain trade sources said

decree to go before the Cabinet is to simplify and broaden existing schemes with the emphasis on encouraging long term savings

within a company. The draft decree envisages increasing the amount that companies must set aside from profits for a reserve fund for employees."

### **US considers** short-term

help for Bolivia By Peter Montagnon, Euromarkets Correspondent, in London

THE US Treasury is considering short-term financial assistance to Bolivia which is facing an acute shortage of foreign exchange, exacerbated by its recent crackdown on the narcotics trade.

### BY JOHN ELLIOTT IN KARACHI THE PAKISTAN Government is tions. Mr Shah said that "a lot of expected next week to decide what charges to hring against reports" had been filed against Miss Benazir Bhutto and other various groups of people for charges including murder, leaders of the country's political opposition, who were jailed nearly two weeks ago, when viowhich in Pakistan carries a penalty of hanging. But "her lent demonstrations swept through the country prolecting against the ruling regime of President Zia ul-Haq. names does not appear because she was not on the spot."

President Zia ui-Hag

day hy Mr Mohammed Khan Junejo, the Prime Minister. President Zia, who does not appear to have suffered politic-ally as a result of the crisis, reviewer the political and security situation with senior officials. Mr Junejo, whose credihility has taken a knock,

has slarted meeting members of Pakistan's parliament in individual states in an attempt to huild a political consensus for the action be ordered against the demonstrations, which built up into Pakislan's most serious outbreak of violence since an uprising in However, it seems unlikely that President Zia will want to

upset the country's political stability by making her a martyr. Her present 30 days Sind in 1983. Estimates of those killed range from official figures of 20 to over 40 and more than 2,000 people are believed to have been arrested; Mr Shah

said only 85 were still being beld in Sind. The tough army action in Sind, coupled with a more relaxed regime in the Punjab

tions, in effect squashed the atlempts by Miss Bbutlo's party to mount a blg offensive against

to mount a hig offensive against the Government. The party had intended to taunch this offensive, possibly including some clvil disobedi-ence and disruption of commu-nications from September 20. But il decided to bring this for-ward to August 14 as a response to Mr. Jungic's has an independent to Mr Junejo's han on independence day meetings.

That played into the hands of the Government, which wanted to deflect the opposition away from the September 20 target. Political activists in the Punjab failed to support demonstra-tions in the Sind and this led to the campaign collapsing because no alternalive organisalion or system of communica-tion had been prepared to take over when the lop leaders were

put in jail. Miss Bhutlo's credibility as a political leader has conse-quently suffered, but she is after four people were killed at expected 10 continue to have the beginning of the demonstra- considerable personal appeal

# **Indonesia and Philippines plan common market**

INDONESIA and the Philip-pines agreed yeaterday to work towards creating a Southeast Asian common market by the countries President Suharto. year 2000, Philiplne Minister of Trade and Industry Jose Concepcion said, Renter reports from Jakarta.

Calm has now heen restored

throughout the country and there bave been no big demon-

strations over the weekend, although a growing problem of armed attacks by handits is con-

tinuing to disrupt the southero province of Sind, which was at the centre of the political pro-

testa and la now being patrolled

Tension has eased in the southero city of Karachi, the country's commercial centre and the capital of Sind, where there were major riots which

hy the army.

The political discussions focused on the Kampuchean conflict. Soviet leader Mikhail Gorbachev's Asian policy speech last month and border issues

while

Philippine crealing a common market Aquino was among the six memhers of the talks with Association of South East President Corazon Aquino was holding separate talks with

Association of South East and Thalland with support from "We have to review the Asian Nations Asean). Malaysia and would figure entire spectrum of trade, The grouping, which links prominently in Mrs Aquino's finance and currency policies in Indonesia and the Philippines talks with Singapore Prime with Thalland, Singapore, Minister Lee Kuan Yew Malaysia and Brunei, will hammer out the common Mr Concepcion said Indonesia import tariffs would be gradu-The idea was discussed at last month and border issues hammer out the common wide-ranging political and between the neighbours. market plan at an Asean sum-economic talks between economic market plan at an Asean sum-mic ministers of the two countries agreed on e vision of Manila, he said.

Mr Concepcion said Indonesia import tariffs would be gradu-suggested that Asean should ally taken off the preferential

The idea was heing pushed years through a series of especially by the Philippines and Thailand with support from 'intermediate steps." "We have to review the

more gradually toward a com-mon market over the next 14 free system is achieved list until the vision of a duty-

SIEMENS

chief minister, denied reports of detention expires in two that charges for the capital crime of sedition and treason weeks' time. President Zia returoed to Pakistan on Saturday from Saudi Arabia, where he had on a two-week Moslem pilgrimhad heen filed against Miss Bbutto, whose father, President and there ware major riots which Zulfkar Ali Bhutto, was exe- on a two-week Moslem pilgrim-caused concern among the husi-cuted in 1979. She now leads age, missing the crisis that in an interview yesterday, Mr and is trying to force the meetitings were banned on Paki-Syed Ghous Ali Shah, Sind's Government to call early elec- stan's August 14 independence

He added that she "could be linked if people who have heen named implicate her" and added: "If evidence comes egainst her, she will not be an exception—she will he treated the same as everyone else.

Islamabad ponders what to do with Bhutto

weighed the costs to the Soviet on August 6 last year.

### **The European Banking Traded Currency Fund Limited** NOTICE of the SECOND ANNUAL GENERAL MEETING of Shareholders to take place on the 26th day of September, 1966 at 11 am.

NOTICE is hereby given pursuant to the Articles of Association of The European Banking Traded Currency Fund Limited ("the Company") that the Second Annual General Meeting of the Company will take place on the 26th day of September, 1986 at 11 am at EBC House, 1-3 Seale Street, St. Heller, Jersey, Channel Islands lor the purposes of considering and if thought fit, passing the following Ordinary Resolutions:

### Besokdione

That the Financial Statements for the period ended 31st March, 1986 together with the Report of the Directors and the Auditors thereon be received, approved and adopted.

2. That Messrs. Coopers & Lybrand who have signified their willingness to continue In office be and are hereby appointed the Auditors of the Company for the ensuing year and that the fee payable to them in respect of the year to 31st March, 1987 be determined by the Directors.

> By order of the Board EBC Trust Company (Jersey) Limited

Dated the 16th day of August, 1986.

NOTES 1. The holder of a Continental Depositary Receipt ("CDR") may exarcise his voting rights by depositing the CDR at the office of Amsterdam Depositary Company N.V., 172 Spussinaa, 1012 VT Amsterdam, The Netherlanda (the "Depositary as to the exercise of the voting rights attached to the Shares evidenced by such CDR, in the absence voorig ngmis awaraneo ar allo sinal as ovularitized by such CUPL in the absence of such instructions, the Depositary will exercise such voling rights or retrain from doing 50, as it thinks fit in the interests of the holder.

2. There are no service contracts with the Directors.



Guaranteed Floating Rate Notes Due 1997 For the six months 27th August 1986 to 27th February 1987

In accordance with the provisions of the Notes, notice is hereby given that the rate of interest has been fixed at 4% per cent. per annum, and that the interest psyable on the Interest Fayment Date 27th February, 1987 against Courses No. 3 will be able on the interest regiment note 2, in requiring, 1867 agr Coupon No. 3 will be: # 24,278 par # 1,000,000 and # 242,778 par # 10,000,000.

The Industrial Bank of Japan, Limited <sup>•</sup> Agent Bank

week, is likely to be seen as further evidence that the so-called Baker Plan to ease the developing countries' debt crises is finally being implemented. The plan was launched by the US at the International Monetary Fund meeting in Seoul last year. The Treasury's state

which gave no figure for any likely loan, praised Bolivia for its efforts in reducing inflation which bas been cut dramatically to 50 per cent in the first six months of this year from 8,000 per cent last year. Commercial bankers who have

been working on Bolivia's \$3hn foreign debt said the Treasury move was an unprecedented one which suggested it could also be: signed as an incentive to Bolivia for its action on the drugs front. They said such short-term fi-

nancial assistance was normally only granted to countries with much larger foreign debts, such as Mexico, in the immediate af-termath of an economic policy agreement with the IMF. It was also musual for the US to consider a bridging loan with-out determining clearly how its loan was going to be repaid, they

### Five die in Cote d'Azur forest fires

said.

a lift.

FIRES THAT have ravaged the pine and mimosa-clad hills above the French Cote d'Azur over the past three days seemed to be losing momentum last night, reports

Five people were killed and 8,500 hectares of hillside burnt in a second wave of forest fires which has hit the South of France this year. Local officials suspect that some of the fires ware deliberately started. A young West German tourist arrested vesterday on charges of starting a fire, admitted he had tried to start another the day before in the hope that cars would halt and give him

Worst damaged were the hillsides between Grasse and Cannes where the flames destroyed 7,000 hectares of pine forest and scrub land, including wild mimosa. In the wake of the worst dronght the Sooth of France has known for 30 years the flames spread at lightning speed. Over 2,090 hectares around Luceram above Nice were also burnt,

# Seeing more of the patient. Without X-Rays.



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# **OVERSEAS NEWS**

BY WONG SULONG IN KUALA LUMPUR

charge of abetment m criminal

breach of trust related to the collapse of Pan-Electric Indus-

Whatever the sentence, how-

ever, Mr Tan's political status as president of the Malaysian Chinese Association, the Chinese partner in the Malay-sian coelition government, and

a member of parliement, would be unaffected as the Malaysian

constitution provides for dis-gualification only if the offence is committed within Malaysia.

Mr Tan, 45, still faces 14 criminal charges related to abetment to criminal breach of

trust, stock market manipula-

tion end fraud, for which the

Korean President,

firmed his chairmanship of the party while bringing in a number of prominent

number of prominent politicians and former military

officers to fill senior positions.

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# WORLD TRADE NEWS

Christian Tyler reports on selling power stations to customers who cannot afford them

# Power engineers fight credit war for exports

THERE IS a new kind of ness, NEI Parsons (formerly enginear in the power plant C. A. Parsons) on Tyneside, had industry these days. He wears a feast of homa orders during a pin-striped suit and spends the 1960s. With customers most of his time in banking queuing at the gate, traditional parlours dreaming op sophisti- export markets, such as Austra-cated loan packages. He is lia and Canada, were left called the financial engineer: unattended, and new competiwithout him, no plant-builder tors, especially the Japanese, can hope to export to the walked in. power-bungry developing By the m power - hungry

World-class design comenough in a buyers' market, business was saved by govern-

By the mid-1970s, things were looking bad, as home orders melted away and the company ment agreemant to bring for-

ward its ordering of the next Drax power station in Yorkshire, and Reyrolle Parsons and Clarke Chapman wera merged to become NEL Mr Anderson: 12 months A £70m programme of invest-ment was launched in 1980.

In the first five years, £40m were spent, mainly on re-equipping the turbine generator shop with computer-controlled by what Mr Richard Maudslay, the 39-year-old managing director of Parsons, calls "e lathes. About a quarter of the plant has now bean renewed, ruthless re-examination of all each modern machine replacing the overheed costs." four or five old ones.

Mr Maudslay says: "Until tha late 1970s, we were suffering Computer-aided design was introduced to help engineers refine the shapa of turbine blades for maximum efficiency. from what people used to call the British disease. But in the last 15 months we have come in tha top three in nur bids for to standardise component manufacture, and to piece togethar on television screens contracts." The company's persistence was rewarded with four orders in new markets in recent years. the complicated lay-outs of the modern power station.

It was chosen in a consortium About 1,200 jobs have been with Klockner of West Germany shed from NEI Parsons in the in May, and there is every sign the process is not yet over.

1. States

get a commitment

All this has been accompanied

three units to Botswana and is tractors, such as NEI, have put sub-contractor to Hyundai of such pressure on their own South Korea for the Al Mussaib Government to sharpen its respower station in Iraq. A turnkey contract for the

fall of 10,000 MW, equivalent to tha total generating capacity likely to be installed in Britain

between now and the end of the

buy them off the shelf. As a result, plant huilders are forced

into temporary international

funds of various governments.

whose government will bring most political influence—and cheap credit or grant ald—into

century.

ponses to international credit competition. Mr Anderson, the competition. Ar Anderson, the deputy chairman, was one of those who lobbled for the recently-announced f300m soft loan facility for China. "It fook 12 months to get a "It fook 12 months to get a Rihand power station in India, won with the help of British government aid, has been a less happy experience. The work fell badly behind schedule, but is now said to be

commitment on soft finance," he said. "The response time really is a bit slow. Everyone knew it would be necessary and np to its revised target. The company hopes to land the contract for Rihand's extension. we need to know whether funds Yet the export market is today only a quarter of what are going to be available before

we start. "After all, it's very expenit was ten years ago, despite enormous pent-up demand for energy in the 'developing world India alone has a short-After all, it is very any in the event, one of the four big projects for which the soft loan is being earmarked is NET's tender with civil engineers Bal-four Beatty to build two \$50 MW units at Yueyang in Hunan Province.

China, Mexico and Turkey, among others, all need power Co-ordination can be as im-portant as cash in this buyers market. For example, some Parstations, but cannot afford to sons people believe they lost the order for a fourth unit in Botswana because the Japanese threatened to pull out their alliances in order to tap the aid other commercial ventures in the country, unless a Japanese company got the order. That is why, for example, NEI Parsons is bidding with Marnheni, the Japanese trading bouse, in China, and with Cana-dian, Italian and Austrian com-panies in Turker. About helf

Only later did it emerge that the UK had simultaneously been negotiating to provide free SAS training to the Botspanies in Turkey. About half of all the business today is undertaken by such consortia: the trick is to find the partner wana armed forces. The two approaches were never linked. Had they been, the result might have been different. Credible or not, that is the kind of calculation they have to make in the power-plant export these days.

the hidding. It is also why big British con-

SHIPPING REPORT Markets

# cheerful

THE TONE in shipping mar-kets was cheerful last week, with rates finally moving ahead on the dry cargo market and continuing to be firmer for

brighter light has dawned," for dry cargo vessels. The rate for grain from the Gulf of Merico

below the lowest levels of 1986. The rate from the Gulf of

In both the tanker market,

# Tan admits guilt

to Pan-Electric collapse charge MR TAN KOON SWAN, the have indicated they would not prominent Mayalsian business-go ahead with them if Mr Tan man and politician, yesterday makes adequate restitution to pleaded guilty in the Sinagpore Pan-Electric Industries and high court to an amended eases the forward share purchase contracts of the company. After Mr Tan bad pleaded

> Mr Tan: still face 14 possible charges

collapse of Pan-Electric Indus-collapse of Pan-Electric Indus-tries, the Singapore marine salvage, engineering and hotel group. He faces up to three years in prison and an pan-Electric, which is now under provisional liquidation, and take over the company's forward conasked the court not to jail him over the company's forward con-tract obligations. but "to impose a fine of a very substantial amount consistent with the gravity of the offence." He said Mr Tan had reached a deal with five Singapore brokers The prosecution told the court Mr Tan bad used a series of complicated share dealings to gain control of Pan-Electric, and on the forward contracts, and if called upon to pay after 18 months he could be exposed to the extent of S\$53m. "No create an artificial market demand to raise share prices of that company, Grand United Holdiogs (his master company)

Pan-Electric collapsed last November owing U\$\$180m in agreement as part of the deal debts and the crisis forced a with the brokers, and Mr Tan's three-day suspension of the companies — GUH, Supreme Singapore and Malaysian stock Corporation and Everpeace sentence is life imprisonment, markets. but the Singapore authorities In mitigation, Mr Tan's lawyer be relisted soon to allow trading.

where delivery times have halved in the past decade. If you want to export a power-station,

A group of eight Malaysian the basis of the excellence of businessmen and six hanks ara our plant, or its reliability — involved in a complex guarantee all the things a good engineer

orders, the company had first of all to cut its production costs and shorten its delivery schedules, before it could hope to enter the cut-throat credit

EXPORTS LIKELY IN DECEMBER

Iran 'to resume Soviet gas sales'

IRAN EXPECTS to resume the resumption of gas exports and was unlikely to be able to natural gas exports to the when he visited Moscow last take its former daily average Soviet Union this year for the first time in more than six • Iraqi attacks slashed Iran'a

Exports were suspended in years, the national news agency Irna said yesterday, Renter early 1980 after Moscow had oll exports by more than 50 per rejected demands by the new cent last week to a dally average Islamic revolutionary govern-ment in Tehran for a substanof some 600,000 barrels, the

ment in Tehran for a substan-tial price increase. Irna sald Soviet and Iranian experts would complete a report by November on the condition of the IGAT-1 pipeline used to carry gas north from oilfields in southern Iran. Diplomats had said earlier this year that the moth of said earlier this year that the Iranian coast at the mooth of 16-year-old pipeline was rusted the Gulf.

World Economic Indicators INDUSTRIAL PRODUCTION (1980=100)

Mahathir and Lee agree over gas and water more By Wong Sulong in Kunia Lumpur BREAKTHROUGH has

A BREAKTHROUGH has been achieved in talks for the long-term supply of natural gas and water to Singapore by Malaysia, following a meeting here over the week-end between Br Mahathir Mohamad, the Malaysian Prime Minister, and his Singapore counterpart, Mr Lee Kuan Yew. By Andrew Fisher, Shipping Correspo

tankers. Danholme Coates, the UK shipbroker said; "A marginally

to Japan was firmer at \$8,95 a ton for early shipments and around \$9.30 for October, November and December. However, these rates are still below the lowever level of 1995

1.25

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Mexico to continental Europe also crept up last week to around \$5 a ton and then exceeded \$6 on Friday.

which has recently benefited from lower oil prices, and the

dry cargo sector, there is still considerable uncertainty.

the Organisation of Petroleum Exporting Countries (Opec) could again limit tanker activity, though Galbraith's, the London shipbroking firm, said ship-owners generally remained optimistic about prospects for large vessels.

July\_1986

large vessels.

Production curbs imposed by

**Korean succession strengthened** BY STEVEN B. BUTLER IN SEOUL A SWEEPING shake-np in the leadership of South Korea's ruling Democratic Justice Party (DJP), announced et the A draft constitution presented A draft constitution presented to parliament today by South Korea's ruling party would preclude dissident Mr Kim Dae-Jung from running for president in the next elections, Renter reports from Const weekend, appears to have strengthened the position of Mr Roh Tae-Woo, the party chair-man, as beir-apparent to the The shake-up, which was orchestrated by Mr Roh, recon-

and its subsidiaries.

Democratic Justice Party (BJP)' officials said the proposed constitution stipu-lates the president must have lived in the country for five uninterrupted years. This would, in effect, bar Mr Kim, who only returned to South Horne in Echange Late wat

Mr Chun Doo-Hwan, the President, is also president of the DJP, although be tends to stay aloof from party affairs. He has vowed repeatedly to step down from power in February 1988, when his term of office expires. Government in which the National Assembly will elect by

Democratic Justice Party Mr Roh, who has never stood

for election, bas served as Sports Minister, Home Minister and president of the Seoul Olympic Organising Committee. Kores in February last year after two years of self-imposed exile in the US. He has chaired the ruling party since shortly after the February 1985 elections, in which the Oppositon made a very strong

of office expires. Mr Rob's strengthened grip on the party is especially im-portant since the DJP has begun campaigning to intro-duce a cabinet' system of Prime Minister. Mational Assembly will elect by anowing. Simple majority a strong Prima Mr Rob is none the less given Mr Rob's strengthened grip Minister and a ceremonial high marks for his leadership President. Many now believe of the DJP, which he has tried that Mr Rob will emerge as the to build into an independent duce a cabinet' system of Prime Minister. Mational Assembly will elect by Minister and a ceremonial high marks for his leadership of the DJP, which he has tried political force out from under the wing of the President.

The shakeup was also designed to improve the party's public image as it negotiates with the Opposition over con-stitutional reform. The Opposi-tion is campaigning for a direct popular vote for a strong President. Mr Rob, 53, is a retired general who played a key role in the military conp that brought Mr Chun to power in

showing.

the makers say, cheap and generous credit is essential "The people who need our kit can't afford to buy it," said Mr Graeme Anderson, deputy chairman of Northern Enginer-

nations.

ing Industries, the only British company that can build a comconventional power longer do we sell on

thinks of. Unless we are ahla to match the finance offered by

reports from Tebran.

It did not say agreement had

been reached with Moscow, but predicted that exports would

start at a rate of 3m cubic

metres per day in December, and rise to 80m or 90m cubic

metres per day by March 1990.

Mr Gholamreza Agazadeb, Iran's Oli Minister, discussed

It did not mention prices,

our competitors, the custom will not buy from us, however super the equipment is." NET's experience is typical. Forced ebroad by lack of home

fray, Its turbine generator busi-



County NatWest Capital Markets Merrill Lynch Capital Markets Salomon Brothers International

Union Bank of Switzerland (Securities)

Banca del Gottardo Banque Scandinave en Suisse Carolina Bank Cazenove & Co. Kredietbank International Group Morgan Stanley International Sanwa International Sumitomo Finance International Vereins- und Westbank

# WORLD CAR MARKETS

| UNP  | TED STATES   | ry-June  |   | JAPAN  |  | WES   | T GERMANY  |  | UK  |   |
|--|--|--|---|--|--|---|--|--|---|---|
| Demestic<br>Imports<br>Total market<br>DOMESTIC                              | 1985 %<br>4,314,667 76.61<br>1,316,969 23.39<br>5,631,627 100.00 | 1986 %<br>4,139,979 73.1<br>1,508,245 26.1<br>5,648,224 100.0                              | 0 Temporte  | 1985 %<br>1,547,227 98.46<br>24,224 1,54                                     | ury-June<br>1986 %<br>1,586,970 98,00<br>32,240 2.06<br>1,619,210 100,00     | Domestic<br>Imports<br>Total market   | January-June<br>1985 % 1986 1<br>874,692 69.60 994,216 7<br>383,005 30,40 482,786 92<br>1,256,697 160,60 1,477,602 100                                       |  | Januar<br>1985 %<br>389,539 41.28<br>554,097 58.72<br>943,636 100.00    | ry-June<br>1986 %<br>428,230 44.39<br>536,476 55.61<br>964,706 100.90   |
| General Motors<br>Ford<br>Chrysler<br>Boada<br>Volkswagen<br>American Motors | . 1,081,872 19.21<br>603,521 10.72<br>83,051 1.47                | 2,373,738 42.0<br>1,906,493 17.1<br>576,651 10.1<br>92,430 1.6<br>39,091 6.7<br>35,206 0.6 | 2 Forma<br>1 Toyota<br>4 Nissan<br>2 Henda<br>2 Mazda | 675,898 43.00<br>397,472 25.29<br>139,796 8.89<br>95,474 6.07<br>88,234 5.66 | 714,361 44.12<br>392,990 24.27<br>153,959 9.51<br>98,275 6.07<br>76,365 4,72 | DOMESTIC<br>Volkswagen<br>Andi<br>Total VW-Audi<br>General Mstors-Opel<br>Mercedes<br>BMW | 289,300 23.00 333,697 22<br>73,596 5.90 79,621 3<br>362,880 28.90 413,318 28<br>198,641 15,80 227,307 16<br>140,625 11.20 154,511 16<br>78,093 6.20 79,191 5 | 40 Bover Group<br>60 General Motors:<br>40 Vauxhall/Opel<br>50 Persono: Tabhat | 246,973 28.17<br>179,262 18.04<br>163,154 17.29<br>39,664 4.29          | 257,921 26.74<br>159,821 16.57<br>154,635 16.93<br>42,796 4.44          |
| LEADING IMPORTERS<br>Toyota<br>Nissan<br>Honda<br>Volkswagen-Audi            | 283,932 5.04<br>251,293 4.46<br>202,849 3.60<br>105,115 1.87     | 277,780 4.9<br>238,321 4.2<br>201,060 3.5<br>1,09,884 1.9                                  | Daihatsu<br>2 Fuji (Subaru)<br>2 Suzuki<br>6 Isuzu    | 52,631 3.35<br>39,225 2.49<br>38,107 2.43<br>29,350 1.29                     | 10,305 1.72<br>50,124 3.09<br>38,077 2.35<br>32,484 2.01<br>30,335 1.87      | LEADING IMPORTS<br>Flat<br>Peugeot  | 56,071 4,50 68,099 4<br>28,013 2,20 43,857 3   | Total Peugeot group<br>Jaguar/Daimler  | 13,519 1.43<br>53,183 5.63<br>4,161 0.44                                | 16,845 1.75<br>59,641 6.19<br>3,884 0.49                                |
| Mazda<br>Subaru<br>Mitsubishi<br>Velve<br>Hyundal                            | 86,350 1.53<br>78,499 1.39<br>62,287 1.11<br>57,580 1.02<br>0.00 | 103,506 1.8<br>92,975 1.6<br>88,154 1.5<br>63,423 1.1<br>52,396 0.9                        | 3<br>5 LEADING IMPORTERS<br>6 Velkswagen-Audi         | 8,988 0.57<br>5,558 9.25<br>4,796 0.31                                       | 11,092 0.68<br>8.093 0.50<br>6,407 0.4 <del>0</del>                          | Talbot<br>Total Peugeot group<br>Renault  | 2,303 0.20 372 0<br>50,908 4.00 69,885 4<br>43,103 3,40 48,306 3   | 06 Volkswagen-Audi<br>70 Nissan<br>30 Volvo<br>10 Renault<br>00 Fiat           | 57,439 6.09<br>46,368 4.91<br>31,683 3.36<br>39,420 4.18<br>29,291 3.10 | 59,673 6.19<br>09,734 5.26<br>35,513 3.65<br>35,172 3.65<br>31,390 3.25 |

# Customers in the US re-discover the 'cheapie'

THE SUCCESS of Hyundai, the South Korean car maker, in the US this year is remarkable, even by the standards of the months. volatile American market. All t

ati i 🚽

US customers re-discovered Hyundal cheap new cars and helped quickly a Hyundai take nearly 1 per cent network. of their market in the first six months. Thus the company is well on the way to its target of selling 100,000 cars in its first full year in the States.

By the end of June Hyundai had sold more than 52,000 of the small, front-wheel-drive Excel models which in basic form have a list price of 4,995 compared with the average \$12,000 Americans pay for a new car or the average \$5,400 for a used

Hyundai's timing was fortul-tous. The Japanese car makers who once dominated the who once dominated the cbeaper end have been moving up-market now they can no looger look for big volume growth in the US.

£1977

the franchise

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Domestic Imports ..... Total market .....

Peugeot-Talbot.

Chroen Total Peugeot group

Renault ......

LEADING IMPORTS

DOMESTIC

Dealers had in mind the fortunes made by some colleagues who got in on the ground floor when the Japanese groups first started tacking the US car market. They also knew about \$3,990 late last year by an Hyundai's phenomenal success independent importer from the in Canada where it was able to state-owned Zastava company in take advantage of the restric- Yugoslavia, had a relatively

FRANCE

1985

584,595 65.25 311,293 34.75

895,888 100.00

199,210 22.24

116,935 18.05 316,145 35.29 268,430 29.96

5

the short space of about 18 olatile American market. All this interest enabled US customers re-discovered Hyundai to put together very heap new cars and helped quickly a formidable dealer

The Jepanese were not left completely out in the cold by the emergence of the demand for really cheap new cars in the US. To start with, Mitsu-bishi owns 15 per cent of Hyundai and supplies the Korean company with a great deal of technology under licence. licence.

General Motors, which dominates the US car market, is importing small cars from its Japanese associates, Isuzu and Suzuki, and selling them at rock-bottom prices through its Chevrolet dealer network as the Spectrum and Sprint. Wheo Hyundai announced last year it would launch in the US this year, one new car dealer in every 10 applied for the formula in the first half of this year GM sold 43,700 Isuzu-built Spectrums, up from 23,000 in the same months of 1985, and the same months of 1985, and 35,700 Suzuki-produced Sprints,

up from 8,600. By those standards, the other new "cheapie," the Yugo, launched with a base price of

January-June

tions on Jepanese cars to become the leading importer in

Mitsuhisbi also intends to sell a version of the Excel through its own dealers in the States.

the Ford Festiva.

about 1.1m.

1986 %

595,341 63.50 341,471 36.50 936,812 100.00

199,711 21.30 108,151 11.50 307,862 32.89

287,471 30.70

By Kenneth Gooding, Motor Industry Correspondent

GM has also lined up another Sonth Korean import for 1988 which will be built by its Daewoo associate there and sold in the US with a Pontiac badge. Toyota also is now neck and neck with Nissan in Western Europe where thanks mainly to its UK importer which sells about 100,000 cars a year, Nissan so far bas beld the lead. Not to be left out, Ford has kored's Kia company for \$30m and intends to import into the US e Kia model to be sold as Total Japanese car sales in Western Europe increased so fast in the first half, from 592,000 in January-June 1985, to Meanwhile, the Japanese still make progress in the US. In the first balf of this year sales of cars imported from Japan moved up from just over 1m in the same months of 1985 to about 1

However, the blg three, Toyota, Nissan and Honda, gave

up some volume to make way for those "captive" imports by GM from Isuzu and Suzuki, and for substantial increases hy Mazda and Subaru,

When made-in-America cars are taken into account, Honda has been firmly established as the top-selling Japanese margne in the US and sells nearly twice as many cars in the States as in Japan.

Buoyed by major cheapfinance incentives for customers, total US car sales in the first half of this year improved mar-ginally, by 0.3 per cent, com-pared with the January-June period of 1985, to 5.65m.

However, while imports rose by 14.5 per cent, sales of US-

55,099 5.88 cars, and Nissan, among the US

Nissan's West European sales in the first half moved up from 153,500 to 178,000 and its share from 2.7 per cent to 2.9 per cent. Between them the Japanese boosted their share of Western European car sales from 10.4 per cent to a record 11.6 per

cent. 727,500 that European Com-munity officials made clear their registrations grew by 8.3 per concern. The Japanese Ministry cent to 6.16m in the half-year, of International Trade and Japanese sales in the 17 major concern. The Japanese Ministry cent to 6.16m in the half-year, of International Trade and Japanese sales in the 17 major Industry reacted by urging European car markets jumped manufacturers to exercise re- by 22.9 per cent, taking over straint so as to avoid further one quarter of the 472,000 ex-trade friction.

And the second modest first-half with sales of 11,840, Some forecasters predict sales of cars with a price of under \$6,500 could reach 1m a year in the US before long. With this in mind. Chrysler has introduced Omni/Horizon America models at \$5,499 and GM is considering launching a version of its old Chevrolet Chevette at \$4,995. GM has also lined up another Sonth Korean import for 1988 which will be built by its Deswoo associate these and sol is now neck and with the first six now neck and proved by 3 per cent to catch up with both of the Maran Song the first six months of the size sol is now neck and neck with Nissan in Western Deswoo associate these and sol is now neck and proved by 3 per cent to catch while Honda continued to catch up with both of the Maran Song the first six months of the size sol is now neck and neck with Nissan in Western Song the size sol the size sol the sol the size sol the sol the size sol the sol the size sol to Toyota the big-gest company, the market im-proved by 3 per cent compared sol the size sol the size sol the sol the size sol the siz

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| LEADING MIPORIS<br>Volkswagen-Andi<br>Ford<br>Fiat<br>General Metors-Opel                              | 66,274<br>67,728<br>42,077<br>41,657            | 7.56                | 71,990<br>67,979<br>55,099<br>46,349                | 5.88                                 | per cent. Only Honda, with an<br>11.3 per cent rise in US-made<br>cars, and Nissan, among the US<br>producers showed an improve<br>ment on the first half of 1985   |
|--|---|---------------------|---|--------------------------------------|---|
| Domestic<br>Imporis<br>Total market  | ITALY<br>1985<br>599,679<br>393,151<br>992,830  | %<br>60.40<br>39.60 | ary-June<br>1986<br>642,059<br>392,051<br>1,034,110 | 37.90                                | Nissan's 248 per cent climb re<br>flects the fact that it began to<br>sell cars from its US factory<br>only in the spring of last year<br>Among the other US manu<br>facturers, GM suffered a 2.57 per<br>cent sales decline. Ford was<br>down nearly 7 per cent. Chrys |
| DOMESTIC<br>Fiat/Lancia/Autobianchi .<br>Alfa Romeo  | 522,141<br>64,828                               |                     | 553,316<br>67,961                                   |                                      | ler nearly 6 per cent, Volks<br>wagen more than 2 per cen<br>from an already very low base  |
| LEADING IMPORTS<br>Renanit<br>Volkswagen-Andi<br>Pengcot/Citroen/Talbot<br>Ford<br>General Motors-Opel | 104,425<br>78,285<br>69,642<br>41,002<br>28,118 | 7.90                | 84,770<br>81,944<br>74.166<br>40,106<br>32,824      | 8.20<br>7.90<br>7.20<br>3.90<br>3.20 | aod American Motors, coo<br>trolled by Renault, saw sale<br>of US-bullt cars drop by nearly<br>44 per cent.<br>The world's other major can<br>markets all experienced volume  |

### Notice of Redemption and Expiration of Conversion Rights to Holders of

### Miles International Inc.

### 43/78 Subordinated Guaranteed Convertible Debentures Due 1993 (Guaranteed by Miles Laboratories, Inc.)

YOU ARE HEREBY NOTIFIED, pursuant to Section 4.04 of the Indenture dated as of June 15, 1968 (the "Indenture"), among Aliles International Inc., a Delaware corporation ("Miles International"), Miles Laboratories, Inc., a Delaware corporation (successor by merger to Miles Laboratories, Inc., an Indiana corporation) ("Miles") and Citibank, N.A. (under its former name First National City Bank), as trustee (the "Trustee"), providing for the issue of the above described Debentures (the "Debentures"), as amended and supplemented by the provisions of the First Supplemental Indenture dated as of January 8, 1979 (the "Supplemental Indenture"), First Supplemental Indenture dated as of January 8, 1979 (the "Supplemental Indenture"), among Miles International, Miles (under its former name Rhinechem Laboratories, Inc.) and the Trustee, that Miles International has called all of the Debentures for redemption on October 1, 1986 (the "Redemption Date"). The Debentures will be redeemed at 100.25% of the principal amount thereof plus accrued interest to the Redemption Date (the "Redemption Price") aggre-gating a total of U.S. \$1,016.35 for each U.S. \$1,000 principal amount of Debentures redeemed. The Debentures will become due and payable and, upon presentation and surrender thereof (with all coupons appertaining thereto maturing after October 1, 1986), will be paid at the Redemption Price on the Redemption Date, at the option of the holder, (a) at Citibank, N.A., Bond Redemption Department, 5th Floor, 111 Wall Street, New York, New York 10043, or (b) subject to applicable laws and regulations, at the and milan or the main office of Banque Generale du Luxembourg 5.A. in Luxenbourg. Payments at the offices referred to in (b) above

Generale du Luxembourg 5.A. in Luxembourg. Payments at the offices referred to in (b) above shall be made by a check drawn on a bank in New York City or by transfer to a dollar account munitained by the payee with a bank in New York City. On and after the Redemption Date interest on the Deckentures will cease to accrue.

on the Detentures will cease to accrue. As an alternative, pursuant to the provisions of Section 3 of the Supplemental Indenture, each U.S. \$1.000 principal amount of Detentures may be converted, at the option of the holder thereof, into the fixed amount of U.S. 5758.11 in cash (the "Conversion Price") by delivery of the Detentures (with all coupons appertaining thereto maturing after October 1, 1986) to any of the above offices, accompanied by written notice that the holder thereof elects to convert the Detentures. As promptly as practicable after the receipt of such notice and such delivery of such Detentures and coupons, there shall be delivered at said office to such holder, or on his written order, a cash payment as specified above. At the close of business on the Redemption Date such conversion rights will terminate. conversion rights will termina

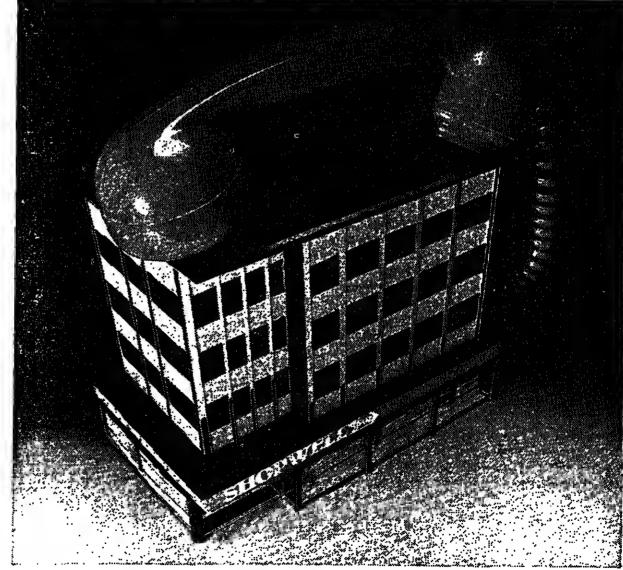
Holders of Debentures should note that the Redemption Price is larger than the Conversion Price.

August 19, 1986

Miles International Inc.

### NOTICE

Any payment made upon the redemption or conversion of the Debentures in the United States or he transfer to a dollar account maintained by the payee with a bank in New York Gity may be subject to reporting to the United States Internal Revenue Service (IRS) and to backup withhold-ing at a rate of 20% if payees not recognized as exempt recipients fail to provide the paying agent with an usecuted IRS Form W-S, certifying under penalties of perjury that the payee is not a United States person or an executed IRS Form W-9, certifying under penalties of perjury the payee's taxpayer identification number (employer identification number or social security num-ber, as appropriate). Those holders who are required to provide their correct taxpayer identifica-tion number on Internal Revenue Service Form W-9 and who fail to do so may also be subject to a renalty of \$50. Please therefore provide the appropriate certification when presenting wour enalty of \$50. Please therefore provide the appropriate certification when presenting your Debentures for redemption or conversion.



### SHOP HEATING

Whether you're responsible for a corner shop or o choin of superstores, you can't afford to ignore the new developments in gos technology that will keep customers warm ond fuel costs down. Gas is highly efficient, economical and will be still going strong in the 21st century ond onwards. For a free oppraisal of how o change to gas can benefit your business, dial 100 ond ask for Freefone Gas.



# **UK NEWS**

Joan Gray reports on one aspect of the City revolution

# **Big Bang boom for builders**

FROM a road junction close to the Financial Times' offices in the City of London, it is possible to see six office blocks covered with scaffolding; behind rise three tower cranes largest building project in the City on the site that will be the Royal since the rebuilding which followed Bank of Canada's new offices, nearthe Great Fire of London in 1666. by, the second largest tower crane in Europe is at work on the stock Victorian Billingsgate down by the exchange. river - is being transformed into a

These developments are part of an office building boom in anticipament Bank. It has room for 450 tion of the Big Bang in October, when the City will be deregulated. Every possible square foot of space is being pressed into use as buildings are updated for the computer hnology of the financial revolu-

Gallery under the roof. "The space is just too valuable to waste," said Mr Terry Hallam, se-nior partner of Matthews and Good-Savory Milln, the analyst, estimakes that there was a 30 per cent real rise in commercial building beman, the surveyors for British Rail tween 1981 and 1985, followed by a and Speyhawk's £100m-plus scheme to build offices in the air and 23 per cent rise in the beginning of this year. space over the railway tracks down The Department of Industry's fig-

ures for orders for new commercial to the river Thames at the back of Cannon Street Station. building show an increase from £2.9bn in 1983 to £35bn in 1985, at The space over the tracks at Charing Cross station, further west, current prices, with orders for the first quarter of 1986 worth £904m is also to be built over, in a £100m levelopment which architect Mr compared to £763m for the same Terry Farrell describes as a new quarter last year. There are no collected figures on ce" on the river. It will have a

dealing floor the size of Wembley football pitch with space for 792 the value of building work done by our members in the City of London,

The space over and around Liver-pool Street Station is already being Confederation. But he added: "I do linked to the Big Beng, Ove Arup's know our members are doing very workload in the Square Mile has transformed into a financial centre risen from 40 projects with a value in a 5300m scheme which is the

well in the City. Just how well they are doing can of 550m last year to 69 projects be seen from a survey of the most worth £100m this year. important office building projects Mr Philip Beck, ch Mr Philip Beck, chairman of

Mowlem, estimates that his turnin the City carried out by the trade over in management contracting magazine Construction News. the form of construction contract fa The 24 major projects for which it voured by commercial clients who could quote prices added up to work want buildings at high speed - has

worth more than £630m for the conrisen from £30m in 1985 to £90m in tractors. 1986; John Laing's management contracting output has tripled in This takes no account of the work under progress south of the river, where John Laing is building the £100m London Bridge City; or of dethe last five years to £130m a year DOW It is not only the big contra velopments such as the plans for which have benefited. Mr Eddie Charing Cross Station; or of work in Clark is managing director of Ladthe growing new financial centre of Docklands in the East End of Lon-Docklands in the East End of Lon-don, where Mr Michie estimates his 45-ton crane Mrs Margaret Thatch-

members are carrying out contracts er, the Prime Minister, drove to inaugurate the first phases of the £136m Broadgate financial office worth "the lion's share of £1.2bn." Analyst Mr Jamie Stevenson of Wood Mackenzie estimates that centre near Liverpool Street Station

there is at least another £3.5bn of work to come from Docklands, with crane - the largest at work in the City - being used to install the powthe £2bn planned Canary Wharf financial offices development being the largest element. The City building boom has al-ready had a healthy impact on the

er station, cooling and air condition-ing systems needed for the Stock Exchange's computerised share information syste ctor's workloads. Mr Clark estimates that "the Big Trollope and Colls - with a turn-

Bang has brought us in an extra over of £150m a year - estimates £1m work on a turnover of £5m.". said Mr Brian Michie, econo-\_that 25 per cent of its workload

Aid sought for black S. African school plan 123.

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By Hazel Duffy

BRITISH industrialists with interests in South Africa are seeking support for a scheme to provide education in British, German and US universities for about 5,000 South African blacks and coloureds.

The idea came from Sir Leslie Smith, chairman of the British Industry Committee which repre 54 companies with South African interests. Sir Leslie, chairman of British Oxygen, is opposed to economic sanctions because be be-lieves they would further entrench the Botha Government's resistance to ending apartheid and reduce the living standards of blacks and coloureds

He will be having talks next month with his counterparts in West Germany and the US aimed at He is also supplying the 450-ton convincing them to do something positive towards preparing non-whites for responsible positions in South African institutions and the economy.

The dangers of the education idea are that industrialists would be seen as trying to set up a class of black capitalists.

NOTICE OF REDEMPTION

To the Holders of

### COCA-COLA INTERNATIONAL FINANCE NV.

### 11%% Guaranteed Notes due 1989

NOTICE IS HEREBY GIVEN to the holders of the outstanding 114,66 Guaranteed Notes due 1969 of Coca-Cola International Finance N.V. (the "Company") that, pursuant to the provisions of Section 6 of the Fiscal and Paying Agency Agreement dated as of October 1, 1982 among the Company, The Coca-Cola Company (the "Guarantor"), and Morgan Guaranty Trust Compaoy of New York (the "Fiscal Agent") and Paragraph ā of the Terms and Conditions of the Notes, the Company has elected to redeem on October 1, 1986 all of its outstanding Notes at a redemption

Company use elected to redeem on October 1, 1986 all of its outstanding Notes at a redemption price of 101.5% of the principal amount thereof plus accrued interest to the redemption date. Payments will be made on and after October 1, 1986 against presentation and surrender of Notes with coupons due October 1, 1987 and subsequent coupons attached in U.S. dollars subject to applicable laws and regulations, either (a) at the office of tha Fiscal Agent in New York City, or th) at the main offices of the Fiscal Agent in London, Brussels and Frankfurt, Swiss Bank Corporation in Basle and Zurich, and Banque Generale du Luxembourg in Luxembourg. Payments at the offices referred to in (h) above will be made hy check drawn on a dollar account maiotained outside the United States and its processing on the transform of older account maiotained outside the United States and its possessions or by transfer from a dollar account maintained outside of the United States and its possessions to a dollar account maintained by the payee outside the Uoited

States and its possessions. Coupons due October 1, 1986 should be detached and collected in the usual manoer.

From and after October 1, 1986 the Notes will no longer be outstanding and interest thereon shall cease to accrue,

Under the Interest and Dividend Tax Compliance Act of 1983, we may be required to withhold 20% of any gross payments made within the United States to certain holders who fail to provide us with, and certify under penalties of perjury, a correct taxpayer identifying oumber (employer identification number or social security number, as appropriate ) or an exemption certificate on or before the date the securities are presented for payment. Those holders who are required to provide their correct faxpayer identification number on Internal Revenue Service Form W<sub>2</sub>9 and who fail to do so may also be subject to a penalty of \$50. Please therefore provide the appropriate certifi-cation when presenting your securities for payment.

### COCA-COLA INTERNATIONAL FINANCE N.V.

Dated: August 26, 1980\_\_\_\_

## FT COMMERCIAL LAW REPORTS Digest of cases reported in the Trinity Term

In re A. V. Sorge & Co Ltd (FT, July 24) In December 1982, the company appointed Mr Ashworth

desks.

its voluntary liquidator. He was displeced some 16 months leter by e compulsory winding up order amid allegations that he bad dissipated the company's assets. In dismissing a motion to discharge the registrar's order regarding Mr Asbworth's remuneration, Mr Justice Hoff-mann said that the court's power to fix remuneration derived from Rule 195 of the Companies (Winding up) Rules 1949 "where the company bas previously commenced to be wound up voluntarily." A voluntary liquidetor could apply under the Rule where he had been duly appointed and then superseded by a compulsory order. Moreover be was entitled to priority for expenses incurred before the commencement of the winding-up. To insist on a strict cut-off in point of time would create a trap for the unwary and could not have been the legislative intention. Allega-tions of negligence could not be

mnneration of the liquidator Appeal ewarded the buyers end could only be pursued by 545 953 demugrage. In allowing writ.

Even London's old fish market -

dealing centre for Citicorp Invest-

dealers in the cast-iron colonnaded

ground floor which was the main

brick-arched basement which was

the refrigerated fish store, and of-

fices for senior staff in the Haddock

arket hall, another 150 in the

In re John T. Rhodes Ltd (FT. July 25) After the winding-up of the company, the liquidator, whn needed to clarify many out-standing matters, obtained an order under section 268 of the Companies Act 1948 to examine an oath a former de facto director, Mr Hayward. In refus-Ing to discharge the order et Mr Hayward's behest, Mr Justice Hoffmann stated that persons involved in the affairs of an insolvent company owed a public duty to assist the liquidator to investigete the company's affairs in the interests of creditors. That duty was particularly strong in the case of those closely involved in the conduct of the company's business. The registrar's order was not oppressive, vexatious or unfair, and sbould be upheld. Gur Corporation v The Trust Bank of Africa Ltd and another

(FT, July 29) In a dispute over a bank guar-

investigated in fixing the re- antee issued in favour of the Department of Public Works in

\$45,853 demurrage. In allowing the sellers' appeal, Mr Justice Staughton stated that " time to count as per Centrocon charter-party " referred to all provi-sions as to when time should end should not count, including clause 30 which was the mat-erial cleuse. "Obstructions" in the clause covered congestion in a port and was no less apt to cover ordinary than extra-ordinary congestion,

South Carolina Insurance Co v Assurantie Maatschappij "De Zeven Provincien" NV; Sonth Carolina Insurance Co v Al Ablia Insurance Co and Anothe (FT, August 1, International edition, Angust 5)

In uphoiding injunctions against the defendants restraining them from obtaining dis-covery of documents abroad, the Court of Appeal based its decision on three grounds, viz: (1) that the English court should retain control of its own dete. process; (ii) that US civil procedure was markedly different and the parties should be regarded as having accepted English procedure when they submitted to local jurisdictioo;

In 1971, while laying ducts by giving the majority share-for the Post Office, contractors holders the statutory power to damaged two underground. cables belonging to the pleintiff. remove the minority share-holder as director and entitling them to buy his shares at fair value. The petitioner, who had The damage was made good in 1976. A writ was issued in 1978 pursuant to section 26 of the made no attempt to use the machinery in determining the Public Utilities Act 1950 that fair value of his shareholding, should not be entitled to comcompensation was payable "equal to expense, reasonably plain of unfair conduct in the incurred." The Court of Appeal circumstances and his petition held that the action was statuteshould be struck out. barred as time had begun to run from the date of the dam-

Be Brightlife Ltd (FT, August age and not from the date of its 13) repair. In overruhing this deci-slon, the House of Lords stated

slon, the House of Lords stated A debenture charged as a that if an enactment gave a first specific charge "all book right to recover expenses, the debts and other debts owing to ceuse of action accrued only Brightlife." Brightlife." A sub-clanse created a floating charge over Brightlife's assets and property. when the expenses were incurred, notwithstanding that the same event might have given rise to a different cause of The debenture further stated that the floating charge could action under statute or common be created into a specific charge law, accruing at some earlier at any time by notice.

Justice Hoffmann stated that as Aden Refinery Company IAd w notice of the conversion of the Ugland Management Co Ltd. floating charge into a specific (FT, August 8 International" one had been given before the edition, August 11) winding-up, the debt secured In a dispute arising out of the construction of a clause of an Asbankvoy charterparty, the arbitrators said that the issue

the hands of the liquidator. tion could

England." Although the plain-tiff buyers did not assent to this term in writing, the Court of Appeal beld, once it was clear that the document formed part of their agreement, section 7 of the Arbitration Act 1975, which specifies that an "arbitra-tion agreement" means an agreement in writing to submit to arbitration ..." was satisfied. Examination of the authorities showed that if a

authorities showed that If a document with an arbitration

clause in writin an arbitration clause in writing formed part of a contract between the parties, one party's oral assent to the contract was sufficient for a binding agreement to arbitrate.

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· By Aviva Golden

### To the Holders of

### R. J. REYNOLDS OVERSEAS FINANCE CO. N.V.

NOTICE OF REDEMPTION

### 123/5 Guaranteed Notes, Due October 1, 1989 Unconditionally Guaranteed by RJR Nabisco, Inc. (formerly R. J. Revnolds Industries, Inc.)

NOTICE IS HEREBY GIVEN that, pursuant to the provisions of Paragraph 6 of the Fiscal Agency Agreement dated as of September 23, 1982, among R. J. Reynolds Overseas Finance Co. N.V. (the "Company"), as Issuer, RJR Nabisco, Inc., as Guarantor, and Morgan Guaranty Trust Company of New York, as Fiscal Agent, all of the Company's 1234°n Guaranteed Notes. Due October 1, 1989 (the "Notes") presently outstanding will be redeemed on October 1, 1986 (the "Redemption Date") at a redemption price (the "Redemption Price") of 101% of the principal amount thereof. On the Redemption Date the Redemption Price will become and he due and payable upon each Note in such coin or currency of the United States of America as at the time of payment is legal tender for the payment of public and private debts therein. Payment of the Redemption Price will be made on and after the Redemption Date upon presentation and surrender of the Notes tensor for the payment of public and private deciss therein. Payment of the Redemption Price will be made on and after the Redemption Date upon presentation and surrender of the Notes together with all appurtenant coupons maturing on and after October 1, 1987 at the principal offices of the Fiscal Agent in London, Brussels, Frankfurt-am-Main and Paris, the office of Swiss Bank Corporation in Basle, the office of Morgan Bank Nederland N.V. in Amsterdam and the office of Kredistbank S.A. Luxembourgenise in Luxembourg. All interest coupons which shall have matured on or prior to October 1, 1986 should be pre-sented for payment in the youal manner. The Notes will no longer be outstanding after the

sented for payment in the usual manner. The Notes will no longer be outstanding after the Redemption Date and interest on the Notes will cease to accrue from and after the Redemption

Accomption Date and inferent on the voies will be void. No payment will be made within the United States, including a payment made by transfer to an account maintained by the payee with a bank in the United States, unless payees requesting such payment establish their exempt status from the reporting and 20% withholding requirements of the United States Internal Revenue Service (IRS) by providing the paying agent with an executed IRS Form W-8 in the case of noo-U.S. persons or an executed IRS form W-9 in the case of U.S. payment who are required to provide their correct tarnayer identification number on U.S. persons. Payees who are required to provide their correct taxpayer identification number on IRS Form W-9 and who fail to do so may be subject to a penalty. Accordingly, please provide all appropriate certification when presenting the Notes for payment.

R. J. REYNOLDS OVERSEAS FINANCE CO. N.V. By: Morgan Guaranty Trust Company OF NEW YORK.as Fiscal Agent

Dated: August 26, 1986

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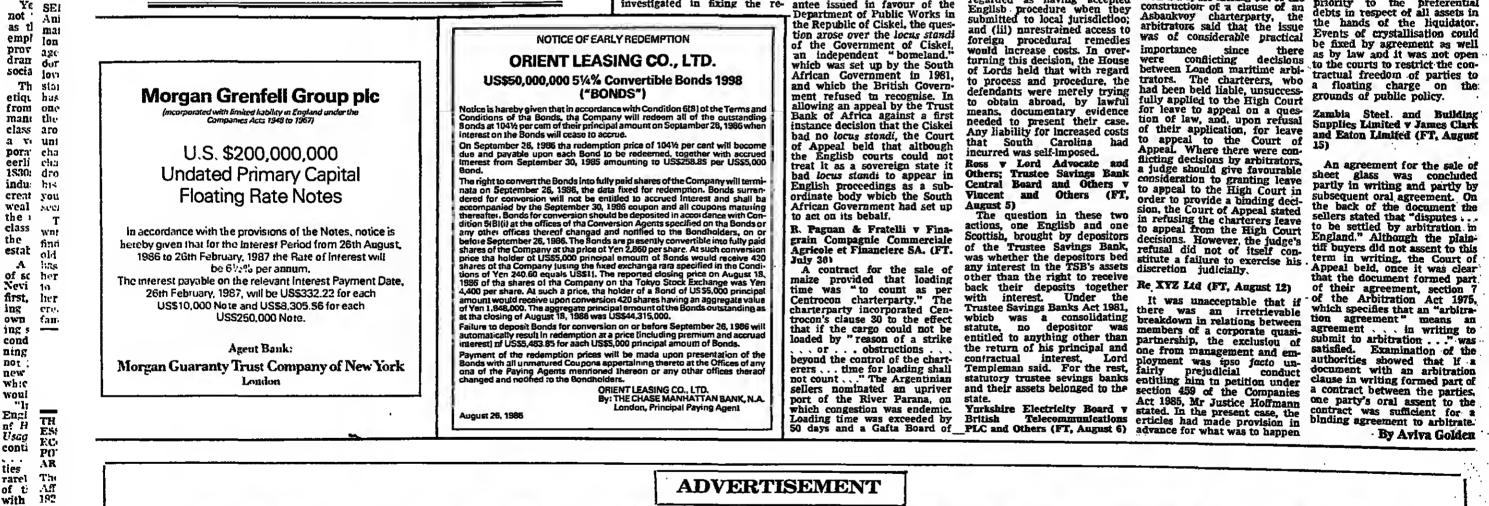
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Theodore Rhenius

Peter Steen, Chairman, President and Chief Executive Officer of International Corona Resources Ltd., and Royex Gold Mining Corporation; Chairman of the Board of Mascot Gold Mines Limited, is pleased to announce the appointment of Gil Leathley as Senior Vice-President, Operations of International Corona Resources Ltd. and Royex Gold Mining Corporation.

Mr. Leathley will join the existing Corona Group Management Team which also includes:

Theodore E. Rhenius, Senior Vice-President and Chief Financial Officer of International Corona Resources Ltd.; Royex Gold Mining

Henry Ewanchuk

Corporation; Mascot Gold Mines Limited.

Henry Ewanchuk, President and Chief Executive Officer of Mascot Gold Mines Limited; Senior Vice-President, Exploration of International Corona Resources Ltd.; Royex Gold Mining Corporation.

**Gil Leathley** 

The International Corona Group of Companies

Anthony P. Walsh, Corporate Controller of International Corona Resources Ltd.; Royex Gold Mining Corporation.

Shirley A. Kozel, Corporate Secretary of International Corona Resources Ltd.; Royex Gold Mining Corporation; Mascot Gold Mines Limited.

Hans Pump, Controller-Operations of International Corona Resources

Shirley Kozel

Hans Pump

Ltd.; Royex Gold Mining Corporation.

International Corona, an independent gold mining company with sub-International Corona, an independent gold mining company with sub-stantial interests in the Hemlo area, is also the largest shareholder in Royek Gold Mining Corporation, a public company engaged in the exploration, development and management of gold properties in North America. Royex is the largest shareholder of International Corona, with a controlling inter-set in Mascot Gold Mines Limited. It also owns 500 of and moment and est in Mascot Gold Mines Limited. It also owns 50% of and manages the Renable Gold Mine joint venture. Mascot is currently developing a major gold mine near Hedley, B.C., and is the exploration arm of the International Corona Group.

••• ••••

Anthony Walsh

# **UK NEWS**

cepted an invitation to visit Moscow

The timing of the visit will inevi-

tably give rise to speculation about the date of the next general election

in Britain, given the potential elec-toral boost for any prime minister undertaking such a top-level

JOHN BROWN Engineers bas

teamed up with Aker Engineering

of Norway to set up joint companies

international offshore market.

during 1987.

missio

### Tin brokers say Thatcher to visit **ITC members** Moscow acted unlawfully next year MRS MARGARET Thatcher, the

### BY ANDREW GOWERS

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A GROUP of 11 London Metal Ex-(ITC) of acting unlawfully and irre-sponsibly in the events surrounding the tin crisis.

The brokers have grouped togeth-er under the name of Tinco Realisations to attempt to recover losses to-talling about £400m which they sus-tained when the tin market col-debts and that they were all well Inpsed in March, They made their aware of the precarious state of the claims in a briefing document pub-lished at the weekend and circulated to trade ministers of the ITC member countries, including Britain.

The release of the document marks the latest attempt by Tinco Realisations to put public pressure on ITC members to admit liability for the council's debts on which it effectively defaulted when its price support operation in the tin market coliapsed last October.

The brokers clearly remain anxious to reach an out-of-court settlement if possible, though they reiter- the Government to "intercede diploate in the new document that they matically or informally" on its bebave received "the strongest legal advice concerning the culpability and liability of the member states, national Court of Justice; or to lift and it is difficult to imagine the the ITC's own immunity from member states receiving contrary prosecution created by its Head-

A GROUP of 11 London Metal Ex-change brokers has formally ac-cused the 22 member governments of the International Tin Council with against ITC members. Others modation is reached.

seem certain to follow if no accomthe recent trip to Britain by Mr Eduard Shevardnadze, the Soviet For-eign Minister, will be Mrs Thatch-The ITC itself has no assets left, so aggrieved brokers and bankers are setting out to prove thet individformer Soviet leader.

Gorbachev, suggesting that the two leaders fix a date for some time council'a finances for several years before it collapsed. Tinco says that it will not neces-

sarily sue all member governments, but is looking for "countries in which it is most appropriate to bring proceedings to establish the liability of the member states." The UK is thought to be a prime target. Mr Paul Channon, the UK Trade and Industry Secretary, has stated repeatedly that the Government does not accept liability and that it

will fight any legal actions. In its document Tinco called on balf: to submit the disoute to interquarters Agreement with the UK.

# Petrol prices likely to rise by 7p a gallon

### BY LUCY KELLAWAY

OIL COMPANIES are preparing for sion of petrol prices in the past few another round of petrol price rises which is expected to raise pump prices by about 7p to a typical charge of 170p or more a gallon. The move, which is expected

within the next week, is likely to go ahead despite the criticism which accompanied the last rise, announced earlier this month.

The second rise is likely to be blamed on the recent increase in crude oil prices. Oil companies said that the 7p increase announced two weeks ago took no account of higher crude oil prices, but was a much needed correction to the steady eroin England and Wales.

The plan, aimed at streamlining months. the present system of local govern-At an average price of 157p a galment and improving democratic lon, oil companies claimed that they were making bitle, if any, profit -control at regional level, could involve the abolition of the 47 existing

from selling petrol. At the time of the first rise, BP county councils and their replacement by up to 12 regional authorigave a warning that another in-crease in petrol prices would be ties. D HORIZON TRAVEL, Britain's necessary by the end of the monta to reflect higher crude prices. In the third biggest tour operator, made a further attack in the holiday price last four weeks crude oil has risen war with the publication of revised from about \$10 a barrel to about winter brochures. \$14. although it is still only half the

level at the start of the year. Editorial comment, Page 12; Lombard Page 13

# Cereals harvest expected to be good in both yield and quality

### BY JOHN CHERRINGTON

started slowly this year, but most farmers have been surprised by the yield and quality of the crops. Some believe it could be a vintage year

Prime Minister, has formally acfor grain. Most fields of wheat, in particunext year for talks with Mr Mikhail lar, appear to be of a very high stan-

Gorbachev, the Soviet leader, Mi-chaet Cassell writes. dard, according to an informal sur-vey at the weekend. The visit, first suggested during The quality of the crops is good, considering thet autumn-sown fields of wheat, barley and oilseed rape suffered badly from poor

er's first working visit to Moscow. She attended the funeral last year weather in winter and late spring. Many were then thought to need reof Mr Konstantin Chernenko, the seeding. Mrs Thatcher bas written to Mr

Wheat has recovered well in particularly of wheat - could set a many parts of the country from ear- record. Wheat plantings have risen

THE BRITISH cereals harvest has by thinning. Oilseed rape yields are by 4.6 per cent this year to 1.99m started slowly this year, but most reported to be a good average, hectares. Spring-sown barley has been yield-The 1984 UK grain barvest toing very well. The only disappointing reports

talled 26.59m tonnes while last year production fell to 22.47m tonnes. have come from farmers growing If there is another large British autumn-sown barley, where yields have been unremarkable. harvest, it will add to the already bulging stores of surplus grain Heavy supplies may also diminish But three quarters of the crop is still in the fields being battered by poor weather, and losses of both the premiums which might other-wise be earned by quality milling wheats, and the official intervenyield and quality could yet be subtion stores may turn out to be the The Home-Grown Cereals Audestination of much of this grain. thority said earlier this year that, if

But for some cereals, demand vields were as high as in the bumper year of 1984, the 1988 barvest particularly for export - is healthy owing to drought elsewhere in the European Community.

Foden competes for army deal

BY KENNETH GOODING, MOTOR INDUSTRY CORRESPONDENT

stantial

the US, is waiting for an announcement about a contract from the Ministry of Defence for 2,000 beavy trucks worth about £250m.

to handle the management, design ners in the race for the contract. and engineering of offsbore pro-The other is Scammell, the specialist vehicle producer within the Initially, the companies will work state-owned Rover group (formerly in the UK and Norway, but the agreement is aimed at leading the BL).

Both companies would use Rollsway to broader co-operation in the Royce 350 diesel engines, now pro-duced in Britain by Perkins, owned John Brown, part of Trafalgar House, will hold 55 per cent of a by Variety Corporation (formerly

the end of this year. Some observers believe the contract will be split between the two contenders. Mr Pigott admits that that is a possibility, but says be bas bad no indication of the outcome. The companies have been asked

to tender to provide vehicles for the Britisb Army's Drops (Demoun-table, rack, off-loading and pick-up system) to meet the requirement

for faster supply of ammunition be-tween depot and front line. Drops vehicles not only will be

Massey Ferguson) of Canada. Mr Mark Pigott, managing direc-tor of Foden, says he expects the

in under one minute, ine army win want the 2,000 trucks supplied over five years, starting in 1988 or 1989. Foden, which employes 450 peo-ple, produced about 550 beavy trucks (over 24 tonnes gross weight) last year, as well as about 100 military vehicles. In 1986, output of nonmilitary vehicles should rise to about 700. Mr Pigott says that Foden is op-

erating profitably. The most recent ly filed accounts for Paccar UK, the major asset of which is Foden, show that in 1984 it suffered a net loss (after tax) of £553.000, down from a loss of £1.43m the previous

### **TSB** to announce flotation timetable

THE EXACT timetable for the flota- lodge their applications for shares. tion of the Trustee Savings Bank is to be announced tomorrow with the release of the pathfinder prospectus by Lazard Brothers, the bank's merchant bank advisors.

way for the UK's largest issue of bank shares by giving detailed financial information about the TSB

will be missing - the price of the is-sue which will not be decided until Some skiing holidays have been reduced by up to 550 with price cuts of up to 571 and the addition of an extra 20,000

The issue, due for mid-Septem- bave to be deducted about £170m to ber, is expected to raise in excess of £1bn for the Trustee Savings Bank. sbares being handed out free to em-Lazards have been working on as- ployees or earmarked for a special

is thought by the City of London to years after the flotation. Many of Lazards' calculations are be £1,2bn-£1.4bn. expected earnings of about £185m "impact day" after which there will other big clearing banks - the issue will prohably emphasise the yield be about 10 days for investors to would yield a total of £L3bn. as a familiar measure.

From these figures, bowever, will

cover issue costs and account for

nerchant bank advisors, The document will also pave the £1.65bn, though a more likely range who keep their shares for three

The key factors in the pricing will also based on the assumption that and making a forecast of the be the levels at which other bank the dividend will yield about 5.5 per group's profits for its current finan-cial year. If the TSB's clearers, Because the TSB will be One crucial piece of information shares are priced at seven times its seeking many private shareholders who are accustomed to keeping this year - s ratio in line with the their money in building societies, it

# THIS NOTICE DOES NOT CONSTITUTE AN OFFER FOR SALE AND THE STOCKS LISTED BELOW ARE NOT AVAILABLE FOR PURCHASE DIRECT FROM THE BANK OF ENGLAND.

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### ISSUES OF GOVERNMENT STOCK

The Bank of England announces that Her Majesty's Treasury has created o 22nd August 1988, and has usued to the Bank, addmonal amounts a indicated of each of the following Stocks:

£200 million 11 per cent EXCHEQUER LOAN, 1990 £150 million 10 per cent EXCHEQUER LOAN, 1896 £150 million 92 per cent CONVERSION STOCK, 1896 £150 million 92 per cent TREASURY STOCK, 2002

The price paid by the Bank on issue was in each case the middle market closing price of the relevant Stock on 22nd August 1988 as canified by the Government Broker.

In addition, Her Majesty's Treasury has created on 22nd August 1966, and has issued to the National Debt Commissioners for public funde under their management, additional amounte as indicated of each of the following Stocke:

£100 million 11 per cent EXCHEOUER STOCK, 1989 £100 million 103 per cent EXCHEQUER STOCK, 1897

In each case, the emount issued on 22nd Auguet 1986 represents a further tranche of the relevant Stock, ranking in all respecte *pari passu* with then Stock and subject to the terms and conditions applicable to that Stock, and subject testo to the provision contained in the final paragraph of this notice; the current provision contained in the final paragraph of this notice; the current provisions for Capital Gains Tax are described below.

Application has been made to the Council of The Stock Exchange for each further tranche of stock to be admitted to the Official List.

Copies of the prospectuses for 11 per cent Exchequer Loan, 1990 dated ath February 1985, 101 per cent Exchequer Convertible Stock, 1989 dated 22nd November 1985 (which contained the terms of issue of 10 per cent Conversion Stock, 1996) and 82 per cent Treasury Stock, 2002 dated 12th August 1885 may be obtained at the Bank of England, New Issues, Watling Street, London, EC4M 9AA.

The Stocks are repayable at par, and interest is payable half-yearly, on the dates shown below

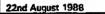
| Shock<br>11 per cent Exchequer Loan, 1990 | Redemption date<br>12th February 1990 | Interest payment dates<br>12th February<br>12th August |
|---|---------------------------------------|--|
| 10 per cent Conversion Stock, 1996        | 15th November 1996                    | 15th May<br>15th November                              |
| 92 per cent Trensury Stock, 2002          | 27th August 2002                      | 27th February<br>27th August                           |

The further tranches of 11 per cent Exchequer Loan, 1990 and 10 per cent Conversion Stock, 1996 will rank for a full six months' interest on 12th February 1987 and 15th November 1986 respectively. The further manche of 92 per cent Treasury Stock, 2002 has been issued on an ex-dividend basis and will not rank for the interest payment due on 27th August 1986 on the existing Stock. Official dealings in the Stocks on The Stock Exchange ara expected to commence on Tuesday, 26th August 1986.

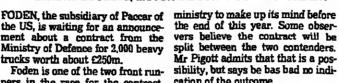
Each of the Stocks referred to in this notice is specified under paragraph of Schedule 2 to the Capitel Gains Tax Act 1979 as a gut-edged securit (under current legislation exempt from tax on capital geins, irrespective o the period for which the Stock is held).

Government statement Attention is drawn to the statement issued by Her Majesty's Treasury on 29th May 1985 which explained ther, in the interest of the orderly conduct of fiscal policy, neuther Her Majesty's Government nor the Bank of England or their respective servents or agents undertake to disclose tax changes decided on but not yet announced, even where they may spectrically effect the terms on which, or the conditione under which, these further tranches of stock ere issued or sold by or on behalf of the Government or the Bank; that no responsibility can therefore be accepted for any ormussion to make such disclosura; and that such omission shall neither render any transaction liable to be set aside nor give rise to eny claim for compensation.

6 ANK OF ENGLAND





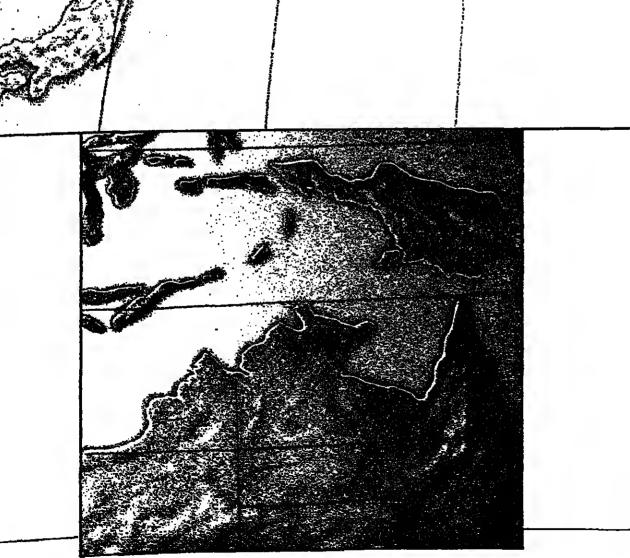


London-based company, John Brown-Aker, and Aker will own the rest. In Oslo, the holdings will be reversed in the other company, Aker-John Brown. ing the creation of a new tier of re-

gional councils as part of proposals for restructuring local government BY DAVID LASCELLES, BANKING CORRESPONDENT

in under one minute. The army will

# **A BANK WHICH SPANS THE LENGTH AND BREADTH OF THE WORLD'S MOST DYNAMIC REGION.**



The Pacific basin.

world's trade.

And today as for many years, home ground for Standard Chartered Bank.

Standard Chartered has built a presence throughout the Far East which remains unrivalled today.

business bank in California, represents a successful US acquisition by a British branch. bank.

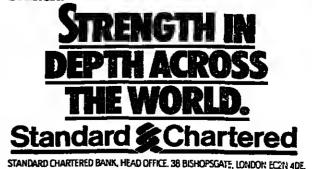
The result is a geographical spread of over 250 branches in the Pacific basin - which is now the envy of many banks scrambling for footholds in the region.

It is a powerful example of the way that Standard Chartered's management strengths have built an international network, of more than two thousand offices

in over sixty countries. A network which Today, the arena for over half the is highly-integrated, built on common procedures and information systems: but made up chiefly of offices which play a central and established role in their domestic markets.

And thus, a network ready to serve the needs of international business, of While Union Bank, now a leading local business and of private individuals.

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# **MANAGEMENT: Small Business**

Technology start-up

8

# **IPS** heralds a new scale of risk funding

### BY WILLIAM DAWKINS

steel and glass factory might be forgiven for thinking they were in California.

They will find a two-year-old start-up that has so far swallowed just over £30m in various kinds of finance, is setting out to take a significant sbare of the world market for its products and is run by an experienced team of executives with long track records in top electronics groups like National Semiconductor, Motorola and

Yet rather than being in Silicon Valley, IPS is in the heart of Scotland's Silicon Glen in the new town of Livingston. IPS is the largest UK start-up ever financed by British venture capital unless one counts Euro-pean Silicon Structures, the pan-European semiconductor business which has pulled in £49m since its launch last September.

The Livingston company, how-ever, has gone far enough down the road to commercial reality to provide a telling illustration of the way British risk investors are getting to grips with handling a giant high technology start-up that demands financing techniques only just beginning to be accepted in the City of London.

IPS has so far raised £14.5m of equity finance in three successive rounds of funding, an ambitious arrangement for a venture capital industry that until recently tended to stick to single tranches of cash. Semiconductor making is so capital intensive—IPS has spent £6.5m on equipment alone—that the Scottish venture could hardly have got away with less. No British venture capital

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group is big enough to stump up that kind of money on its own, so syndication was the only answer. However, the idea of working as a team with competi-

WERE IT not for the persistent consortium of 16 institutions; icy drizzle, visitors to integrated Keeping that group fully Power Semiconductors' blue informed has been a significant computer businesses, though its consortrum of 16 institutions. Computer Justitesses, indights Keeping that group fully devices can be used in many informed has been a significant other products, where mechani-burden for IPS. cal parts are controlled elec-tronically. One example of an hand, been compensations.

informed has been a significant burden for IPS. There have, on the other hand, been compensations. It was Equity Capital for undustry, for instance—a junior player in the deal—which recently provided IPS with a valuable non-executive chair-man, Jack Armstrong, better known as managing director of

man, Jack Armstrong, better known as managing director of the European components sub-sidiary of the US automation group, Allen-Bradley. An important part of Arm-strong's job is to communicate between the company and its myriad investors, a task which was getting too much for David Wood, IPS's 42-year-old founder and managing director,

### Smartpower

It comes as no surprise that Wood, appropriately a Cali-fornian, met extreme difficulty in persuading the City to hack which had been part of his his plan for the first significant remuneration. These enabled UK semiconductor maker since the birth of the troubled Inmos own money for seed equity, the in 1978. Wood, who even kind of commitment which resorted to ambushing visiting would normally make British British wanture comitalists in work own for first Britisb venture capitalists in US botel lobbies, dreamed up IPS while working as engineer-ing director for Silicon General,

an unusual plan. So be loft Silicon General in mid-1982 to spend the next 16 months sur-viving on the proceeds of the Silicon General share options which had been part of his

> risk investors come flocking. "Certainly, everybody wanted to bear about it. The difficulty

ing director for Silicon General, was the size of the money and the Californian semiconductor the idea of baving planned producer. Samiconductor makers have stages of financing," recalls semiconductor makers bave traditionally tended to serve one of two markets: devices for controlling the power that Wood.

After spending another \$100,000 or so criss-crossing the Atlantic (when the share options goes into circuits; or the cir-cuits themselves. Wood's Idea was to do both-to put power and logic on to one chip, thereby enabling IPS to replace circuit boards with devices the ran out, his wife sold her Cor-vette sports car) Wood even-tually won the support of Peter English, then a Si Venture executive.

But why Britain? "I wanted

It was less difficult for Wood size of a pen top, or smartpower to identify 12 senior US semi-conductor executives — now the core of the 130-strong business — prepared to follow him on

size of a pen top, or smartpower in industry jargon. "We are in the middle, try-ing to pick up a vast market that is only being served in dribs and drabs by both sides," he explains. According to Data-quest, the US research group, the available world market for so-called smartpower could

£5m round was in place and IPS was able to start marketing semiconductors made under contract by Motorola in France. Starting in a rented office near Disneyland, the group moved into the basement of Livingston Corporation's headquarters before its f6m leased factory was finally ready by last November.

But in the two-year period needed to raise finance, a cor-nerstone of Wood's business plan bad started to crumble. The strategy was (and remains) to build up credibility and a dependable revenue base by establishing IPS as a second source for existing chip de-signs. Proprietary IPS products would come later.

### Second round

Development

However, the recession in the semiconductor industry has meant that prices for second meant that prices for second source products have dipped by up to 20 per cent since Wood drew up his plan. IPS's near 4Am loss in the year to last March, up from a £1.6m deficit in its first 12 months, is a little better than hudgeted for. But Wood admits: "We are beginwood attints: we are begin ning to struggle on sales be-cause of the problems of the second sourcing market." Second source sales through

distributors were supposed to account for three-quarters of last year's £650,000 group sales, but actually made up more like half, with new products doing better than expected. All this

was always there—it was just a question of price." says Wood. By round three—f4m in June —the semiconductor industry's depression bad stubbornly re-fused to end, but Wood and his team could ill afford to spend days pleading their case in the City all over again. Accordingly, they took a risk and simply acted existing share.

Accordingly, they took a risk and simply asked existing share-holders, to put up the cash through a rights issue. All but one, Alan Patricof Associates, agreed. Wood admits that the semiconductor industry's prob-lems, allied with the fact that equipment leasing was far harder to get than be bad imagined, has forced IPS to raise £2.5m more equity than planned. But he maintains that he is still on track to break even as budgeted by the middle of next year and make a profit in the 12 months to March 1988, when sales are expected to hit stern

£16m. "There is no reason that we cannot do £100m sales by 1991, We know the market exists and

we have the technology," Word says bravely. In the meantime, bowever, IPS faces two more important challenges. The first is to keep this cash-bungry venture funded until it paces its \$15m annual cales

passes its £15m annual sales break even point. Wood is now busy lobbying larger electronics companies, rather than venture institutions, for contributions to what is planned to be the final financing round before a public

flotation. working as a team with competi-tors took some getting used to for UK venture capital funds which were only just starting to build up the efficient net-the available world market for to so-called smartpower could us that is only being served in - prepared to follow him on for UK venture capital funds to build up the efficient net-the available world market for the available world market for uses that is was difficult for the so-called smartpower could us that is was difficult for the spect is one reason why IPS has been backed by an unwieldy to build up the first manager's time. The money have to move fast on our feet." The second challenge is for

# In brief...

A NEW source of help for first time microcomputer users in trouble emerged last week with the launch of the newly formed Small Business Support Group. Based in

Based in Broadway, Worcestershire, the group consists of six mircrocomputer software experts who aim to provide instant telephone assistance for buyers of most makes of micros available in high street shops software. The service is designed for small business-men who have been entired by the rapid decline in hardware prices to buy computers but who find the software complex and difficult to get

to grips with. An annual 540 subscription An annual 540 subscription to the group buys access to its five day a week telephone advisory service, use of the One-to-One electronic mail-box service and a quarterly magazine of useful tips and reviews of developments in the microcomputer market. The group is supported by the retail chain W. H. Smith, which can arrange member-ship through 150 of its major stores. Details from Jane Davis at the Small Business Support Group, Bank Build-ings, Kennel Way, Broadway, Worcestershirk, WEL2 7DP.

OWNERS and managers of Which and managers of small companies seeking to expand can join Middlesex Polytechnic next month for a training programme funded by the Manpower Services

Commission. Entitled Action Learning Entitled Action Learning for Managers, the course en-courages participants to learn from each other and to develop skills in areas like finance, marketing, or per-sonnel. It is designed for people who have run their businesses by hunch but now need a more professional avanach.

approach. The course starts with a weekend session on Sept-ember 13 and 14 and cootimes with 12 Tuesday even-ing meetings at the Middle-sex Business School in Hendon. A second programme begins next January. Details from Admissions Enquitles, Middlesex Polytechnic, 114 Chase Side, London N14 5PN.

YORK ENTERPRISE, the city's enterprise agency has launched a £250,000 business development fund for small ventures likely to create or sustain jobs in the area. Details from Geoffrey Sher-win at York Enterprise

attaches. Once the budding exporter bas given a description of his company and its goods or serwin at York Enterprise Limited, 1, Davygate, York.

Financial Times Tuesday August 26 1986

EDITED BY CHRISTOPHER LORENZ

# How to assess a market

Martin Posner continues his series on exporting

THE NEXT step for a business vices, copies of trade literature that has decided to explore the and, if possible, a product possibilities of exporting is to sample, the commercial assess the market for that first attache's office will then make specific enquiries to assess the

assess the market for that first anaches of overseas order. The previous specific end article in this series showed prospects. how critical it is to plan care-fully all export marketing policy. Now is the time to examine whether local condi-tions will permit that policy plan to come off. Let us sup-pose that the plan is to export to fixed and is to pose at the according to balance of the streng to fixed and is to pose at the durated and A report will normally be provided within 12 weeks, from the first enquiry to the Market Prospects Services. Its first part will cover topics like market conditions, local demand and the strengths and pattern of competition from locally pro-duced and imported goods. This should highlight any obvious pitfalls in the exporter's path. The second part of the re-

A good start is to look at the detailed statistics of the Ex-ports to Europe branch of the pitfells in the exporter's pain. The second part of the re-port is an assessment of the product or service's chances in the existing market. It gives an overview of likely competitive-ness in terms of price, delivery and quality. Finally it suggests the best methods of developing British Overseas Trade Board. Those will show among other things that Britain's exports to Italy were worth £3.5bn in 1985, making it the UK'a sixth biggest market.

This information is free to This information is free to all businesses. Further sources are the country reports issued by all major clearing banks. Lloyds economic reports are particularly informative — its 30-page review of Italy covers population, politics, economic growth, average incomes, share of production and services.

growth, average incomes, share of production and services, banking and finance. A quick read of the Bankers' Almanac Year Book, which is available in most reference libraries, will show how many international banks operate from the City of London. The almanac also lists all overseas hranches of all major banks. By contacting these banks you can gain an immense amount of trading and economic infor-mation, in most cases for nothing. Reading this general back-ground material will help the first-time exporter to develop a

first-time exporter to develop a feeling for the target country. A telephone call to the local area BOTB desk officer will produce advice on UK export re-strictions or Italian import re-strictions. It is now possible to start

**Businesses** for Sale

It is now possible to start assessing the market for the product or service to be ex-ported. The BOTB also operates a Market Prospectus Service through which it can contact the 170 British embas-sies and consulates abroad to confirm the type of help avail-able from local commercial attaches. The next article will look at

Martin Posner is a credit management consultant.

**Business Opportunities** 

# FAX UPDATE

AN AUSTRALIAN COMPANY suscializing in the manufacture of a natural cough matcure requires an agent to manage adartigution through-out the UK. The product heat apocalizert sales poten-tic product heat apocalizert sales poten-

sales. This market prospect service costs only £175 (including: VAT). It is a greatly subsidised scheme available to exportent who wish to develop sales in Western Europe, the US, Canada, Australia, New Zealand, South Africa, Japan, Brasil, Hong Kong, Malaysia and Singa-pore. Where an encouraging re-port stimulates a visit to the market covered, the BOTB will refund the fee as a contribution towards travel.

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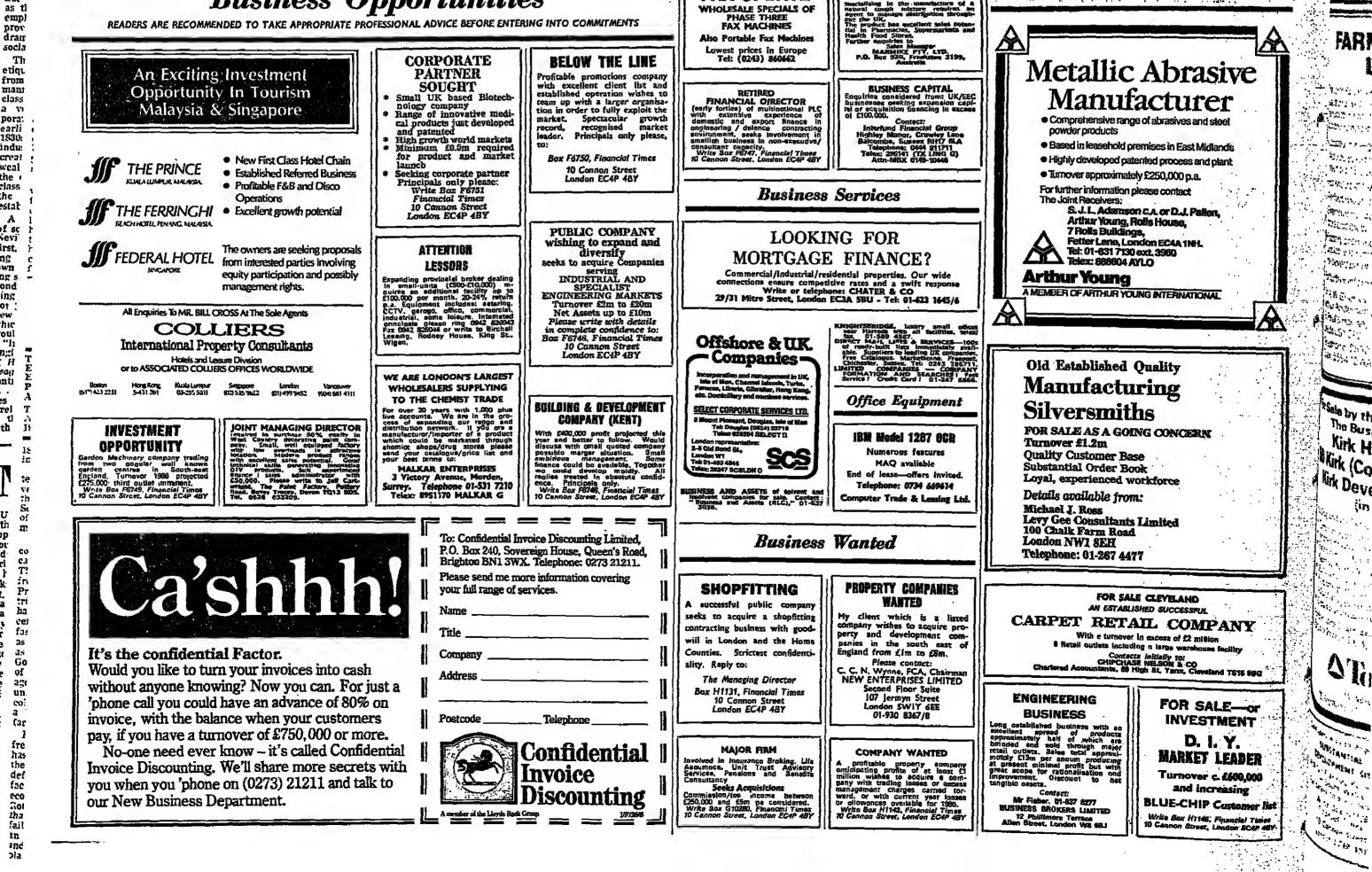
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AP AICTS

towards travel. Free professional advice is also available from the board on how to set about market research for exporters or potential exporters

exporters or potential exporters of goods or services produced in the UK. Grants are available through the BOTB's Export Mar-ketting Research Scheme. The Department of Trade and Industry publishes free advice on selling to 170 different coun-tries entitled Kints to Ex-porters which are available from the DTI, 1 Victoria Street, London, SWIH OET. The World Trade Intelligence, publishes guides from £19.50 each for exporters considering the following markets: West Germany, Netherlands, France, Inaly, Spain and Portugal. A US Italy, Spain and Portugal. A US guide will be published shortly. Details from WT1, 140 Taber-nacle Street, London, EC2A 4QJ.

tariff restrictions, exchange con-trois, and payment terms.



### APPOINTMENTS

# Alex. Stenhouse creates new division

ALEXANDER STENHOUSE as formed an aviation and aero-bace division. The new divi-on has been specically created by the exclusive purpose of pro-ding London marketing ser-ices for the US and Canadian stall aviation operations of lexander & Alexander Inc and eed Stenhouse, as well as for iternational space and satellita ients. Appointed as divisional rectors are Mr A. M. Elson, r D. J. Woods, Mr K. A. Webb id Mr K. H. Cosmbs.

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r D. J. Woods, Mr K. A. Webb bd Mr K. H. Coemhs. At STEEL BURRILL JONES r J. C. W. Wright has been pointed a director. The sponsibility for marketing, esti-mating and technical services.

ONTRACTS

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\*

Mr T. R. Usher has been appointed a director of PHOENI-CIAN HOLDINGS of Vancouver, BC. He is currently executive chairman of its UK subsidiary, CHANCELLOR INSURANCE CO. Mr F. P. Mannix and Major-General N. St G. Cribben hava been appointed directors of Chancellor Insurance Co

At L G. LINTELS for wayne Paiman has become a financial director and company secretary. Mr Pulman who joined I. G. Lintels in August 1986 as finan-cial manager and company secre-tary will now be in overall con-trol of the company's financial affairs. affairs.

Mr Stephen Finch has been made a director and deputy chairman of NOBLE & LUND. He was previously deputy chair-man of Weir Group and a director of Suter.

TTV INTERNATIONAL has pointed is overseas division.
In Midwood will have responsitive to the succeeds Mr Reith L. Smart is a director of H. J. HEINZ COMPANY.
It is overseas division.
It is overseas

# £15m radar order for Marconi

ARCONT ANALY a contract orth nearly £15m by the Royal

as received an order worth 15m from the Central Elec-icity Generating Board. The miract is for the design, manuntract is for the design, mand-clure, testing and installation 1 17.7 km of 400 kV single core 000 sq ann copper conductor, prugated aluminium sheathed if filled cable and accessories ; Goring Gap in Berkshire, ICC installed the first circuit tere in 1965-67. The cable and ventorizes for this contract will tere in 1966-67. The cable and reasonies for this contract will e manufactured by BSCL's rith Works in Kent during 1987 od installed by Balfour Kil-atrick, part of Balfour Beatty e member of the BICC Group), eady for completion during 988. Most of the cable route rosses e goit course where, to roid excessive interference.

**Businesses** for Sale

ARCONI RADAR SYSTEMS joint bays and ancillary appe- total project costs and between is been awarded a contract ratus. nine and 18 months in elapsed

Is been swarded a contract orth nearly flim by the Royal reaction for the Supply is defence radar facilities in the ingdom of Jordan. The contract function of Jordan. The contract follows the Memorandum is the mean radar facilities in the ingdom of Jordan. The contract state ingdom of Jordan. The contract worth of its type to be the first of its type to be thatcher to Jordan last Septimber. A significant element by computer-controlled operation adar has supplied over a period i 25 years.
NCC SUFERTENSION CABLES as received an order worth is contract worth is contract worth is contract worth is contract worth is a contract worth first of 7,000 residential apartment of 7,000 residential

plexers and modems made by Belling Lee Intec, a member of the Cambridge Electronic Group of companies.

In a contract worth £830,000 Barchays Bank has bought the BIS FUNDMASTER 38 investsupply the Government of Hong Kong with cabling and switchgear HIS FUNDMASTER 38 invest-ment management system from HIS APPLIED SYSTEMS, part of the BIS (Business Intel-ligence Services) computer services group. BIS FUND-MASTER 38 is the IBM System 38 version of BIS FUND-MASTER. It is a multi-currency investment management system for its 35,000 houses per-year low cost housing programme and the construction of the new Tsuen Muen Hospital \* **BELLING LEE INTEC** has won orders worth around fl.9m. It has, in conjunction with its agency in Norway, S.A. Svendsen, secured a contract for the supply investment management system designed to satisfy present and foreseeable requirements of UK

of companies. The first phase of a contract, valued at £200,000, has been secured to supply EMP suppres-sion systems and RF screened doors to Portugal, through its agent, Centrel. A result of the increase in the use of high tech-nology solid state devices in motor vehicles is a joint venture by Belling Lee Intee with Emerson & Cuming Europe for the construction of a welded steel EMC suppression chamber at the Motor Industry Research Association. This will be com-plete with microwave anechoic materials and full mechanical and electrical services. The total and electrical services. The total project value will be around £500,000. A contract worth around £3m A contract worth around 25m has been awarded to PRESS OFFSHORE by BP Petroleum Development for hook-up work on the Forties Echo platform.

Part of the South East Forties project, the contract will be carried out by Press's Aberdeen-based offshore services division. Under the management of a BP rith Works in Kent furing 1987 foreseeable requirements of UK secured a contract for the supply Under the management of a BP od installed by Balfour Kil-atrick, part of Balfour Beatty international banks, pension communications equipment, ovar e member of the BIOC Group), funds, insurance companies, the next five years, to the Nor-plant to book-oup and commission will be installing FUNDMASTER fl.2m, with an option of expan-tation of the cable route barge fund management. Barclays will be installing FUNDMASTER fl.2m, with an option of expan-ation restrictions will be branch in Old Broad Street, installed. The systems will form will be installation pro-branch in Old Broad Street, installed. The systems will form will be installed branch in Old Broad Street, installed. The systems will form will be installation pro-to the siting of can save about 40 per cent of digital network, using multi-in October.

ENGINEERING BUSINESS FOR MERGER

Long established engineering company involved in the installation, service, repair and refurbishment of specialised capital equipment plus regular sales of spare perts has

# Liberty Life Association of Africa Limited

### Interim report for the six months ended 30 June 1986

### SI MULARISED GROUP INCOME STATEMENT antian Signal Year staled 31 December (anthogh 1985 . 1985 1986 Bas Note Net premium income Net income from invest sendry income 436,9 338,1 +27,4 686,9 217,9 167.6 +30,0 377,2 Total income 648,8 505,7 +28,3 1 064,1 Net taxed surplus Preference dividends 35,6 26,4 +34,8 (3,7) (2,7) +37,0 64,1 (6,5) 2 Net taxed surplus attributable to ordinary and preferred ordinary disrebutices 31,9 23,7 +34,6 57,6 Number of ordinary and preferred ordinary shares on which net based surplus per share is based (1008) Net (and surplus per share (cents) 2 15 680 13 958 +12,3 14 183 1 & 2 203,2 170,0 +19,5 406,4 Dividends per ordinary share (cents) - Interim (declared 21 August 1986) - Final (declared 12 March 1986) 3 158,0 125,0 +20,0 Total dividends per ordinary shar \$50,0 125,0 +20,0 300,0 widend per preferred ordinary Interim (declared 21 August 1986) 118,14 SUMMARISED GROUP BALANCE SHEET 30 juna 30 juna 31 Dacuster 1986 1985 1985 sastudi dacuster Rec Rec Rec Interests of - shareholders of Liberty Life - primority shareholders 2 1262,7 1353,3 713,3 447,6 908,6 912,5 Total capital and reserves employee Long-term liabilities Life funds 2596,0 1161,1 1821,1 709,9 187,7 574,3 4512,4 3526,5 3931,7 7618,3 4875,3 6327,1 Represented In 7**528,8** 29,3 465,2 4795,4 23,4 356,2 6249,0 29,9 389,4 Frank antes **Current** and Yotal assets Correst Rabilities

8414,5 5175,0 8668,3 596,2 299,7 341,2 72123 4875.3 6327.1 Declaration of interim ordinary dividend

### NOTES 1. Liin in

To be to the general improclashing of undertaking full actuated unknown other than at the end of the ferancial year, no volusions of the full function of Liberty tile and its misualizer, Charter Life immenon Company Limited, are conducted at the full year stage. For the suppose of fulls hardware report and following the company's established processes, the set texed augults has been lockuded on the basis of an estimate which search in the not taxed surplus per where heigh shows at half the fixed actioned for the protona full franceiral year metals of 31 Disconber 1965.

### Instant starts install

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Bight effer In April 1906 the company raised E246,8 million by way of a right offer of 2 467 804 new preferred cadesary shares to the holders of its ordenary and convertible indexnable cutotable performer threes on the human of 15 new performed rainbury planas milt tach at an latere price of R100 per three for every 100 actionary or convertible indoxinable cutotable performers threes human bits are performed rainbury planas.

3.3 The leased share capital of the company following the sights after relevad as in 2.1 is presently as follows:

- presently as failtows: 14 837 614 cutimary shares of ET each; 2 4637 044 prelicited ordinary shares of ET each; 1 334 424 convertible reducestable consultable preference shares (Sorius A, B, C, D, E and F1 of B1 each which are convertible (or indexmables) at the option of the loadiess on verying terms and classs lato an equivalent number of ordinary places in the company on the bat days of Soptember in the years 1386 in 1997; A reachess of 192 314 of these convertible preference shares are convertible into outloary shares on 30 September 1996, "
- 18 519 842 Total makes of ordinary, pas

# VICTOR CASTINGS

# Horticultural Business Plant propagation nursery specialising in modular production of vegetable plants for the farming industry.

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and preferred ordinary dividend in respect of the year ending 31 December 1986 These chridends have been declared in the currency of the Republic of South Africa and chreap synnest thereon will be possed from the offices of the South African and Linked Kingdom tra-incretances on or about 3 October 1986.

In accordance with the company's divident policy of declaring interam ordinary lavel of one-half of the total ordinary divident for the immediately preceding that directors have ensolved to declare an interim ordinary divident of 150 cants per on respect of the year ending 31 December 1966.

Transitionite Journance Holdings pic ("Transitionite")

and other is

Limited.

4. New balances During the 6 monets ended 30 jane 1986 new annualised premiums (which exclude clears permutes and annually considerationa) at 627.1 million were virtually identical to the R77.4 million accessed during the corresponding penol of 1985 nonvirtualizations the difficult example. Contrictions prevaining during the type of under review. Total new business permitten incomes including single premiums and annually considerations for the first half-year amounted to a record R236,7 million compared to 3165,0 rollion for the same period of 1985 representing an increase of 29%.

TransAtlantic learning to this pic ("TransAtlantic") In May 1996 TransAtlantic reased at 275p per share. In order to broaden in shareholder base and its residuce TransAtlantor's addependence from the need for any financial support hom its South Artician parent company. Laberty, Lie placet the major person of its rights explorence in terms of the rights offer with a wide spread of United Kingdom institutional and other investors.

and other investors. During July 1986 following an offer by TransAdanic for the balance of the ordinary shares and preferred stock which 4 did not already own in The Continentia and Industrial Trust pic. ("Continential"), a major United Kingdom authorized Investment trust, TransAdanic (normand its holding in Continential from 25% at 31 December 1985 to 83.3% at 23 July 1986. As part of the offer, TransAdantic issued an additional 4 315 222 new preferred ordinary there at 275p offer than to former shareholders in Continential to an alternative in the cash offer which, taking into account the 30 million preferred ordinary hates issued in terms of the rights offer referred to in the previous pragmaph, studied in Laborty Life's finitema in TransAdantic being reduced from 75% at 31 December 1985 to approximately 56% at 23 July 1986.

Charter Life Issurance Company Limited ("Charter Life") In April 1966 arrangements were concluded between I iberty Life, Goardian National Insurance Company Limited ("Cuardian National") and Linted Building Society ("USS") whentoy the lab butters of Chardian National was, with effect from 1 January 1985, sandered to a new file insurance complexy registered in Charter Life Issurance Company

Lanace. In order to facilitate the participation of UISS, an intermediate company was established is adminished of Liberty Uic, held as to 67% by Liberty Uite and 33% by UISS. The astrobuty equity retreasts of the shareholders of Chatter Life are electively hold as to approxime 1% by Uikery Uie, 37% by Caardian National and 20% by UBS. The results of Che Life have been ancluded in Liberty Uie's income statements for the six months ended 30 J and.

Subject to no unforesten factors uniting during the numbring months of the financial year the net tamed surplus per share and dividends per orthosty share for 1906 are expected to show a subjectory increase over the level assurated in 1905.

Johannesburg 21 August 1986

HGH Samuel Registrars Lambed & Greencoat Place London SW1 P 1PL

Notice Is hereby given that interim ontinary dividend No. 37 of 150 cents per share and proferred ordinary dividend No. 1 of 110,14 cents per share have been declared in respect of the year ending 31 December 1996, payable to shareholders registered in the books of the company at the close of business on Friday, 5 September 1986.

8

Cheques in respect of dividends source by the Linted Kingdom transfer recretaries will be drawn in Unland Kingdom carrency topropiers on 25 September 1966. Non-resident chareholden' tax at the rate of 15% will be deducted from dividends where applicable.

On behall of the board D. Garden (Chairman) H. P. de Villiam (Deputy Chairman) N. Winterton (Barcathe District)





Monitoring

components

PANDROL International has

PANDROL International has hunched a system which can measure the movement be-tween neighbouring com-ponents. This has already been used in the railway in-dustry to study the movement of the rail relative to the support elegeer which can indicate any likely familes in the railway like is vehicles travel over it.

The dichroic displaces

The dichroic displacement measuring instrument, which was developed by Cambridge Consultants for Pandroi Inter-mational, has a wide range of applications where two com-ponents move relative to one unother. More information from Pandrel in London en 01-334 2255.

Hunting for

particles

hased on this principle.

acts as a

telephone

64166).

PHONE TERMINALS are created from the IBM per-sonal computer (PC) or a compatible model by plugging

in a circuit board from Thorn Eriesson Telecommunica-tions, Horsham, UK (0403

moving

travel over it.

priv

# **Revival of the Fittest**

5 <u>7</u> 8

10

IT HAS become quite hazardous to walk about the main machining shop at Westphalia Separator's sprawling works in Oelde, a small town just north of the Dortmund-Hanover autohahn. For about two years now the floor has been the preserve of two brooding, computer-con-trolled, workpicce transporters and they are not programmed to avoid visitors.

Westphalia founded in the town in 1893, is the world's second biggest pro-ducer of high speed centri-fugal separators—along with the industry leader, Sweden's Alfa Laval, it commands more than balf of a market estimated to be worth raughly DM 1.8bn (US\$864m) a year. Its ubiqui-tous product, or ones like it, forms the core of any operation requiring the separation of two fluids or fluids fram solids to produce anything from cream and cheese to coffee extract, oil from shale and antibiotics.

In some ways, Wolfgang Habig, chairman and now a Haby, chairman and how a senior member of the family which has owned Westpbalia Separator since 1915, belies tho apparent quiet of the industry ho works in. Witty, a voluble follower of the international Parase to do nothing Press, he seems to do nothing slowly. That partly explains why his main sbop floor is no longer safe to walk on.

Paris and the realisation gradually dawned on them that the job they had in mind for the machining centres could be com-His grandfather, Werner Habig, first camo across the plotely automated. The result was that Westcompany, then in trouble, as a young banker and was so con-vinced ho could make money out of it he bought it. The pre-vious owners had been dismachino shop one of the few authontic flexible manufactur-ing systems (FMS) in the country outside of the motor industry. Where, five or six years ago the daily stock of machined bousings in-house would average around 350, each worth around DM 9,000, today there are hardly any tracted by other technologies and at one stage produced The Westphalia, a car. Wolfgang Habig has been

chairman since 1976. By that time the boom in the separator market had happened-up until worth around DM 9, the war the market had been there are hardly any. almost entirely dairy-based but

Peter Bruce in Bonn tracks the progress of Westphalia Separators, a leading separator maker

# Where robots now stalk the factory floor

after 1945 the chemicals indus- vision by a foreman for about tries in Europe and the US 30 minntes at tha start of each tries in Europe and the US 30 minness at the start of each began to make huge demands on day. The two Dixi 420 TPA separator producers. Separator machining centres replaced technology and to adapt itself two Dixi jib borers and two to very large capacities and to Scharmann CNC horizontal automation. Today about 60 per borers. Mr Habig insists that cent of Westphalia's revenue is none of the other potential earned in non-dairy markets. Ten years ugo though, the guarantee them the accuracy commany was confronting a well promised. and he says. earned in non-dairy markets. Ten years ago though, the company was confronting a well served, though not quite satura-

promised, and, he says, dolivered, by the Swiss machine ted international separator market and wondering how to maintain balance sheet strength tool maker Controlled by a Nixdorf

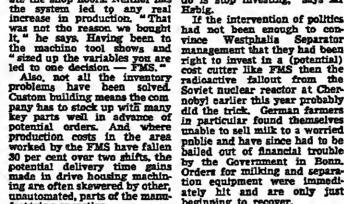
central computer, a supervisory DEC computer organises the actual operating sequence within the system. There are Ailen Bradley supplied numerical controllers on the machines them-

the overbeads would fall. There are about 1,000 machine tools in the Oelde plant, nearly 150 computer controlled, and most of which with an average age of less than 10 years The two Schindler Digitron antomated guided vehicles (AGVs) colect bousings from a neighbouring high level ware-house. When a machining centre becomes free, they deliver the waiting bousing. Machining time varies between 60 anr 120 minutes per housing. ducer, Dixi, to do the main machining on the 40 or so different cast iron drive hous-ings for its seperators. These housings weigh u pto 800 kg. At about the same time though Machining timo varies between 60 and 120 minutes per housing. depending on how big it is. But another advantage for the com-

another advantage for the com-pany is that the cost of machining on tho system is constant, regardless of the size of the part or batch. Wolfgang Habig is very casual about all this. "It is nothing extraordinary," be says, "there was a risk it would not work here it was not so great work but it was not so great. The machine tools would have

been usable anyway." Because the company paid for the installation itself, it never really got around to doing a detailed cost justification. The DM 6.2m Westphalia FMS substituted only 10 or so jobs out of a total workforce of 2,600 and the whirring robot cars moving between storage

worth around DM 9,000, today and machine tool area easily there are hardly any. lost in the maze of stand-alone The system requires super- machine tools that still domin-



**TECHNOLOGY** 

facturing operation. None of this may sound very None of this may sound very positive but consider where Mr Habig might be had he not bought the FMS. Just as the system was approaching com-missioning, the European Com-munity farm ministers agreed to impose strict quotas on the production of milk in the EEC, a decision that devastisted West-

production of milk in the EEC, a decision that devastated West-phalia Separator's core market The company's sales in the European dairy industry fell by half, says Mr Habig, and another important Westphalia Separator product, milking equipment, was also badly hit. In the US, too, milk quotas are in force and the market, tha world's biggest, is difficult, "The farmers there are in a "The farmers there are in a bad way and the first thing they

ate the shop floors. Neither has do is stop investing," says Mr had not been enough to con-vince Westphalia Separator management that they had been right to invest in a (potential) cost cutter like FMS then the radioactive fallout from the Soviet nuclear reactor at Cher-nobyl carlier this year probably

Cheese is just one dairy product which relies upon the separator for its manufacture

did the trick. German farmers in particular found themselves unable to sell milk to a worried public and have since had to be bailed out of financial trouble by the Government in Bonn. Orders for milking and separation equipment were immedi-ately hit and are only just

beginning to recover. In the face of all this, Mr Habig has become even more convinced of the need to antomate. The company is spending another DM Sm on an auto-mated high-stacking system, due to be completed by the and of this year, to store bowls, the core piece in any separator.

core plece in any separator. Ha has little option. Firstly, bo suspects that his competitors have probably not done as much sutomating as ha has and will soon begin to try and catch up. Secondly, sales growth is now so slow that cost manage-

pany's strategies. Turnover between 1980 and 1985 rose by just 18 per cent to DM 400m. (Many West German company

chiefs weep if they fail to do that overy 12 months) and net profits for last year totalled DM 12.4m. Although the FMS has

doing more with the machines in s third shift when the system is not being used. Automation, he argues with soma passion, can be made a nonsense whom it is switched off so that people

it is switched off so that people can go bome or on holiday. Use of the Oelde FMS will probably be subcontracted out when it is not in use by West-pbalia. "We are not only self-ing machine time." says Mr Habig, "we are offering pre-cision as well." · Previous articles in this

series : May 28: Swatch, Swiss watchmaker. June 3: Hoover, British

furer. Jane 17: VEGE Motoren, Dutch remanufacturer of car engine

July 8: Bellot: French flour miller. July 15: Electrolux, US vacuum cleaner manufactarer.

July 30: BUSM, British manufacturer of machin tools for the shoe industry. machine August 13: Benetiun, Italian clothing producer.

THE FIRST use of combined

ted last Friday at the opening of the Energy World exhibition at Milton Keynes.

It was one of more than 50

# Measuring finishes

PLASTICS and surfaces machined to mirror finishes may not be as smooth as they seem. So Hahn and Kelb has developed an optical sensor developed an optical sensor which can measure surface roughness without contact which is particularly appli-cable to delicate materials. In optical sensing, a beam of infrared light is directed

at the surface being checked. The beam is scattered accord-ing to the irregularities in the

Hahn and Kelb's UK com-pany on 9788 74261 says that the instrument has applications on the production line.

Image

processing

IMAGE processing becomes markedly chesper with a UK-developed system from Data Harvest of Bedford, which is making and selling a system for industrial, security.

THE PRESENCE of par-ticles in fluids can cause, damage to plant and machinery. Monitoring the amount of such particles in lubrication oil, for example can indicate that a machine for industrial, security, scientific and other fields that costs only £395. Called FrameStore, the system can acquire and analyse TV pictures from a variety of sources by digitis-ing one frame into random access memory and then recognising 64 levels of inten-sity in each of 192 x 256 pic-bure elements. ean momente that a internet will need repair or mainten-znce. Corman based at Lane-ing in East Sussex is now marketing a wear monitoring instrument developed by Ful-mer Research Laboratories

ture elements. One digitized and stored, the data can be manipulated in various ways to suit tho application. More on 0525 \$73666. **IBM PC** 

### Office planning

INTERGRAPH, one of the leading specialist makers of computer added engineering, design and manufacturing systems has launched some software for planning the layout of an office of produc-tion facility. The software makes use of thathese tech-nology. It has two databases —one for catalogues and the -one for catalogues and the other for projects. Catalogue databases defina

64166). The PC becomes an inte-grated workstation for voice and data, for use with the Thorn Ericsson MD 110 voice/ data PABX (company tele-phone exchange). Users con-Catalogue discusses denna furnithre, fixtures and equip-ment items and grouping of items that might form part of a design while the project tinne to use their PCs as be-fore, but in addition can comdatabase contains information, on space allocations, occupanis and everything which has been placed in layout drawings. municate data to other users either in or out of the building. The board sets the appripriate data rates auto-matically.

tributed around the network. provide extra power that may The central control building be needed. 

on its roof. The wind generator also links into this control grid. It has 30 feet diameter hlades and is mounted on a 60 feet high tower tain in the complex. The electricity for but also powers a small foun-tain in the complex. The f500,000 project has

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polot contribution from a minus 0.2 point contribution in fiscal 1985). The downturn will be attributable to a fall in external demand (to minus 1.9 points from plus 0.7 point) and a slowdown in private demand (to plus 2.7 points from plus 3.7 With their off-year elections win their on-year electons approaching, the U.S. is ex-pected to step up criticism of the Japanese surplus. It seems unlikely that the strong yen alone will mitigate Japan's external economic friction In short, it is essential that

ment has assumed a gargan-tuan importance in the com-Sun and wind power join forces

already paid for itself, Mr Habig is also adamant that it he used to tha full and the company bas begun to examine ways of

domestic appliance manufac-

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# Japanese economy will grow 2.4% in fiscal year 1986

while the growth of sales slowed. The answer then, as it

appears to remain, was to invest money in production and hope

of less than 10 years. In the early 1960s the com-

pany decided to bu ytwo large horizontal machining centres from a Swiss machine tools pro-

senior company engineers were visiting major machin tool ex-hibitions in Tokyo, Chicago and

pbalia Separator, in August

machino shop one of the few

commissioned in

1984

In 1986, the U.S. economy is expected to grow 2.5 per cent in real terms. Buoyed by declining oil prices, lower interest rates and a weaker dollar, U.S. busisegment ness activity will advance moderately this autumn. Due to the huge surplus in Japan's current account balance, the yeo will remain strong during the year. The yea will remain around ¥160 to the U.S. dollar in fiscal 1986. As for crude oil prices, Japan will Import crude oil at about \$16 per barrel in the fiscal year.

The domestic economy will remain stagnant for the time being. Meanwhilo, the soaring yen and cheaper oil will wipe out inflationary expectations. Therefore, Japan's monetary policy is expected in be relaxed.

Outlook for fiscal 1986

Japan's real economic growth will stand at 2.4 per cent in fiscal 1986, substantially lower than the level in fiscal 1985 and the lowest since fiscal 1974 when a negative growth was recorded.

The nominal growth rate will be 3 9 per cent, the lowest since fiscal 195t when Japan started compiling GNP statistics. In addition to the deflationary effects of the strong yen, low inflation brought about by the yen's rise and lower oil prices is responsible for the slow nominal growth. Wholesalc prices, in particular, will fall 6 one cont in ficeal 1998 chow-9.6 per cent in fiscal 1986 showing signs of deeper disinflation. Taking a look at the business cycle, both the nominal and the

real growth rates in the first half of fiscal 1966 will be lower than in the second half of fiscal 1965. Corporate earnings in the first half will also be lower than in the preceding half. These forecasts are based on the view that the strong yen's deflationary impact on the economy will reach a peak during the first half.

However, in the second half of fiscal 1986, the benefits of the rising yen and cheaper oil will be gradually passed on to the economy, thereby helping boost private domestic demand and

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causing brighter signs of increased by active utilization recovery. of the Government's invest-Outlook for each demand

ment and loans program and local governments' public works projects. An expected sharp fall in the deflator and the issuance of Personal consumption will increase 3.0 per cent in real terms, higher than the 2.7 per cent for fiscal 1985. Although gold coins commemorating the 60th anniversary of tho Emperor's reign will be other nominal personal income growth will slow down due to positive factors raising government spending. low pay bikes and less overtime work, real personal incomo will

The current account sur-plus will post a sharp deshow a higher growth rate, helped by price stabilization. crease of 44.9 per cent, a nega-

Private housing invest-ment is expected to increase 4.9 per cent in real terms, higher thao in fiscal 1985. Hnusing starts will be promoted by lower materials prices, lower interest rates, tax cuts and softer housing loans.

Private capital invest-ment will not lose upward momentum, but its project-ed reat growth of 5.3 per cent will be far below tho rate in fiscal 1965. Behind the slower growth are declusing exports in the manufacturing sector. This sector will refrain from building up its facilities, reflecting lower capacity utilization and declining earnings. On the other band, capital in-

vestment by the non-manufac-turing sector will continue to be active; power utility and gas companies are scheduled to boost their capital investment sharply in line with the Government's stimulative policy. Other non-manufacturing businesses will also step up spend-

ing, due to larger earnings. In addition, somo manufac-turing concerns will increase research and development in-vostment amid intensified competition.

Public demand will expand 9.0 per cent in real terms, accounting for t.5 percentage points of the 2.4 per cent real growth rate in fiscal t386. The cent sioce the yen's rise will push down the price of imported manufactured goods and the issuance of the Emperor's commemorative gold coins will 1.5 point contribution will be the highest since fiscal 1978 boost gold imports. when an expansionary fiscal As a result, Japan's economy policy was adopted. In response to the call for stimulation of domestic de-mand, public demand will he

will be unable to avoid a sharp downturn in fiscal 1986 despite the help from increasing public demand (up to a positive 1.5

points). Nevertheless, Japao will ai-tain domestic demand-led expansion in fiscal 1966 for the first time since fiscal 1978. Balance of payments Japan's current account bal-

ance will register an enormous surplus of \$80 billion in fiscal 1986, as compared with a \$55 billion surplus in fiscal 1985. This historically large surplus will be caused by not only the expanding merchandise trade surplus but also the decreasing invisible trade deficit. The strong yen will slow down the growth of export

Japan boost imports by opening its markets further to foreign goods and expanding domestic demand. Despite the deflationary impact of the yea's upsurge, the

Japanese economy retains signs of strength mainly due to the accelerated implementation of public works projects in the first half of fiscal 1986. In the second half, private

demand will pick up somewhat, but Government spending will lose momentum in reaction to the early implementation of public works projects. There is a possibility that the Govern-ment's fiscal expenditures will' decline. In addition, within the frame-

### Outlook for Japanese Economy in FY1986

volume, but the value of dollar-

based exports will rise because

2-0 14 1st heri and hat THE NAME +13 +24 +45 (42) +45 (27) +43 +43 +43 +42 (13) +42 (13) +42 (13) +43 +138 +443 (-13) -42 +44 +44 +44 \*\*\*\*\*\*\*\*\*\*\*\*\* \*\*\*\*\*\*\*\*\* \*\*\*\* +42 +4.5 (2.5) +4.7 (2.7) +123 +123 -104 +123 -14 +123 -14 +123 -14 +125 (2.7) +124 -14 +125 (2.7) +125 -14 +125 -17 +23 +13 +3.8 (3.7) +4.8 (3.7) +4.8 (3.8) +2.8 +4.8 +10.9 +86.8 +86.6 +2.9 +2.9 -3.0 Fixed capita +482 (1.5) +15.8 +15.9 +15.9 +15.9 -----+82 -0.7 +2.1 -5.0 +1.7 -1.5 -10.5 -4.3 +2.3 37.0 48.0 197.9 122.3 17.1 1.5 55.0 61.6 180.7 24.7 26.4 27.3 84.7 . . . . . . . . . . . . .

nal gross national and up, and mining and a

tive factor hindering the overof the so-called J-curve effect. Although the mighty yen will all economic growth Exports will drop 6.2 per cent mainly due to the yea's rapid scent. The weak U.S. economy help increase import volume, the value of dollar-based imports will be unchanged as a and China's import restrictions fall in oil prices will make oil will also be responsible for the imports cheaper. export slowdown. On the other

The projected fall in the invisible trade deficit will be brought about by larger overhand, imports will grow 4.8 per seas assets, which will increase interest and dividend incomes. Issues to be tackled

Despite the yen's sharp rise, the current account surplus will expand further in fiscal 1986.

group.

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37.1 36.1 86.4 71.0 71.0 453 194.1 568 194.1 work of the ansterity budget policy, there will be limits on

the use of effective fiscal policy. Therefore, stimulating private demand would be a key to sustained economic growth, Specifically, it will be necessary to pass on the benefits of the yen's rise and cheaper oil to the domestic economy as soon as possible and also to promote the demand-expansion measures proposed in the so-called Mayekawa report prepared by Prime Minister Yasuhiro Nakasone's private advisory

The pert DKB monthly report will appear Sept. 25.

energy efficient homes which are on show over the next months and is probably the most unusual in terms of power gen-

eration. At present only one house is their ability to supply electricity powered hy the combined sys-tem though nine bouses are can better match the seasonal tem though nine bouses are can better match the seasonal demands. The project will be Each house will have a bank of monitored by solar arrays set into the conser- University. University. vatory roofs. The output of the arrays goes to a central control vatory roods. The output of the The control room also con- built the arrays goes to a central control tains 5 tonnes of back-up Powerneti building where the power is dis- batteries to store electricity to controls.

at the Milton Keynes Energy been funded 40 per cent by the at the Milton Keynes Energy Park. Total output of the two systems is 30kW. Both wind and sun power on their own tend to fluctuate in their ability to supply electricity the hore is that engeneration

cost. Solapak, one of the leading electricity companies in the UK, has built the arrays while IRD, part of the NEL group, has built the wind generator and Powernetics has provided the

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# THE ARTS

### Art/William Packer

# Private Goya and Russian treasure in Lugano

Great art never disappoints, though we may have driven half way across Europe to put it to the test. This summer, for example, in Lugano, which sits with such picturesque con-venience upon its lake beside one of Europe's arterial auto-routes, are two exhibitions of most beautiful end extra-ordinary things which, taken item by item, few of us could ever hope to see again.

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For again this year Baron For again this year Baron Thyssen-Bornemisza has con-tinued his policy of comple-menting his own generosity, by which significant portions of his own collections agem to be for-ever on tour abroad, by drawing back to Lugano in return special exhibitions and displays which perheps only he could bave requested and achieved.

requested and achieved. So it is that the suite of private rooms at the Ville Favorita, converted temporarily into galleries — which last year held major paintings from Hungarian collections—is filled (until November 2) with an historic display of European gold and silver work of ell kinds, plate, jewellery, furni-ture and assorted objets d'ort from the collections of the Hermitage in Leningrad. None of it has been shown in the West before and mucn of it has hardly been seen in Russia except by scholars, for the Hermitage is so fabulously rich in its reserves. in its reserves.

What the Hermitage bolds in the treasure it confiscated from the Russlan nobility at the Revolution, is not merely com-prehensive but definitive. Here we can be given only the barest indication of its range and depth and yet one so choice and rare, taking us as it does from the exquisite furnishings of Russian Orthodoxy of the 17th century to Faberge, by way uf the grealest craftsmen of



"The Countess of Chinchon," Goya (1800)

the religious composition, tha children playing, and the darker, more amhiguous imegery of satalism and witch-craft, which preoccupied him in Europe in the centuries between. But the other exhibition la no less remarkable. Of all great

no less remarkable. Of all great artists, Goya is the most modern of the old masters, tha most persocal and accessible, never more so than in a time such as now, when we are so particu-larly concerned with the expressionist virtues of direct-ness of statement, immediccy of touch and, behind It all, the almost paipable presence of the artists himself. And 'yet It would be a mistake to try to lift blm out of the context of bie blm out of the context of bie own time, which formed and conditioned him.

Proto-modern as he was, he Proto-modern as he was, he too was looking to the past for his example, to no one more than to Velasquez—and where then does the modern begin, or tradition end? It is the quality of transition which gives the work of a true artist its peculiar identity, as it were its temporal funcementant, which no temporal fingerprint, which no other can quite share, for shifts

temporal ingerprint, which no other can quite share, for shifts of influence, personal adjust-ment and development and the simple passage of time can affect no one alike. The further rooms of the Gallery proper at the Villa Favorita bave been given over (until October 15) to an exhi-bitions of works by Goya in private collections in Spain, many of them still in the pos-session of the families whose forebears first acquired or com-missioned them. Some have never been shown publicly before, nor even left the house. This being so, the importance of the exhibition, and its quality, are greater than its actual volume might suggest. Only something over 40 paint-ings are shown, some of them very small, yet together they span his full career and the several aspects of his oeuvre, several aspects of his *centre*, a blue and the decorative panels, the por- off her ye traits, both intimate and official, ravishing.

his middle years and was given its fullest, most potent expres-sion in the great black paint-ings in the Prado. But it is not to Goya the fantasist, nor even to the painter of the religious icon or the public figure or the royal personage that we look for the

truest, most poignant sense of his creative identity. He was of course, as we see here in his twin nortraits of the delicious Countess of Fernan Nunez and her romantically baodsome busband, a master of the grend full length. But rather it is the painter of tha buman likeness

in its immediate intimate presence who is the most direct and accessible to us, and the most truly modern.

No matter that it may be full-length and large or small and close, faced by a sitter whom be respected or perhaps knew well as a friend, or doted upon, Goya produced some of the most profoundly bumane studies of the buman cheracter and condition ever made. His friend Leandro Fernandez fixes us forever with bis calm stare, half turning above the bigh collar of his buff coat, the paint nothing hut greys and pinks and browns laid on with, it seems, the lightest of feathers. It is e small work, almost modest, and

yet of the greatest art. A year or so later, in 1800, be A year or so later, in 1800, be gives ns the most touching and intimete of grand portraits, the seated full length of one of his favourite models, Maria Teresa. the young Countess of Chinchon. The space she sits in is no more than shadow, she in white laced with blue with in white laced with hlue, with a blue and white bonnet to aet off her yellow hair. It is quite

The trouble with interna-The trouble with interna-tional theatre seasons is that one man's ham can prove caviare to the general. An introductory note to this year's Edinburgh World Theatre Festival makes the Choral Symphony's sentimenta on universal brotherhood sound positively misanthropic. But far from underlining the unity of the buman race, the interna-tional selection emphasises bow incommunicable certain values are from one culture to another. This was illustrated by the This was illustrated by the Teatro de la Plaza's production

Teatro de la Plaza's production of Lorca's Blood Wedding. The almost inanely pretty blue and gold of the Lyceum mede an odd setting for this story of a bloody destiny, as hard as sun-baked rock, unfolding its curse. The set by Manfred Dittrich comprises three sides, plus lid, of a plain box, in unevenly applied brown wasb. The back wall rises to reveal e sky of picture postcard blue and two curved breast-like bills. The anstere stylisation Is only partly anstere stylisation is only partly echoed by the production of Jose Luis Gomez. To a non-Spaniard there are snatches of Maeterlinck Féerie shot through with Iberian harshness, with a sidewaya glance at Expression-

ism. The naturalistic byplay of girls in print frocks and men in their Sunday suits jars with the figure of Death, a hooded beggar-woman whose face is never seen, and the personification of the moon as a bald, naked young woman who strolls prosaically (and verbosely) on while a vast yellow orb rises over the stage, like a shop-window monocould they have window mannequin they have

forgotten to dress. An oddly-placed interval and the lowering of the curtain for the lowering of the curtain for noisy scene-changes defeated the purpose of the spare, uni-versal vision attempted, and summed up the director's uneasy mixture of classical restraint and fiorid theatricality. The almost constant presence of the villagers fulfils the function of a Greek chorus: but the of a Greek chorus; but the occasional melodramatic gesture from Gemma Cuervo's obses-sively bereaved matriach fails to make up for the actress's youthfulness and lack of

strength. Lorca was killed 50 years ago to the month. The poetry remains his monument; but to this non-Spanish speaking playgoer, the pace was monotonous, the stage images portentous. This chapter of international theatre merely serves to remind ns that under the skin we are

ns that under the skin we are all natives of Philistle. The omnipresent locals in Lorca have their connterparts elsewhere in this year's Edin-burgh drama. The age of the star gives way (political signifi-cance bere?) to the production dominated by those who tradi-tionally stand and wait—or rather flounce, glower, gasp, smirk and generally upstage thelf supposed betters. The unspeaking courtiers dominate

**Martin Hoyle** 18th-century carnival maskers trendy comprehensive mock-In tricornes and cloaks, the cockney is one), the production open atage of the Assembly compensates with some brau-Hall is never free of their tiful moments. The black poking, prying and leering. drapes extend to blanket the Barnardo and Marcellus have to clutch the back drapea together to keep out those insatieble faces for a few moments' MacConcenter write to keep out those insatieble faces for a few moments' privacy with Hemlet. They are omnipresent, mopping and mowing and mimicking, miming grief or applause with tiny, silent gestures, uttering purs or clicks, waving fans in unison like the chorus of *The Mikado*. Bath parasitic and provocative, they propel and are creatures

Blood Wedding, Hamlet, Medea/Edinburgh

of court intrigue: a more atylised version of the politic-ally-conscious Russian film of some years ago. All of which is fascinating but fails to edd up to a coherent and consistent view of Homlet. The main message of Ricbard Williams's production seems to be that the medieval antecedent of today'a admirably respectable Schleswig-Holstein-Sonderburg-Schleswig-Holstein-Sonderburg-Glucksburg family were a load of loonies. Malcolm Rennie's Claudius, obviously beffled, re-sorts to shouting his lines at an unremitting forte. Jean Marsh, dazzling in a panniered skirt that Marie-Antoinette would have coveted, intelli-pantly hints at a sympathetic gently hints at a sympathetic Gertrude, hut remains a cruelly under-used actress in ber own country. Sarah Berger comes into her own as a raucously in-sane Opbelia. She belts on the tattered remains of ber dress bitched up round ber thighs, ell thrusting aggression, a roaring girl who knees the unfortunate bystander in the

be or not to be." When David Threlfall's Prince lets down his reddish-brown hair, be looks like Holman Hunt's Ligbt of the World. In drag, that is, for though Hamlet'a traditional black jecket and leggings contrast with the full Casanove/ Venetian of the rest, be spends

most of the play in a dress. This Hamlet is a puzzle. In the closet scene we neither see nor bear the Ghost, so must agree with Gertrude that it is "the very creation of his brain." This contrasts with the earlier sighting when Hamlet writhes under the moving spotlight emanating from his invisible spectral father whose voice is heard, not too distinctly, from

various points above us. Pre-sumably unbalanced, this Hamlet is so bizarre that one can only wender at the famed tolerance of liberal Scandinavia.

Joanna MacGregor's music twangs and hums in the (beautifully dressed) play scene. Rosenkrantz and Guildscene. Rosenkrantz and Guild-enstern are stylised, almost Commedia, each with a 'nask on the back of his head. And Richard Kay's Poloniua is one of the best. Played relatively atraight (for which relief Inuch thanks) as a shrewd polltician and still frightening pater-familias, he is authoritative and drily humorous. The production may infuriate but it certainly may infuriate but it certainly stimulates, and the audience (as opposed to some critics) loved it.

The chorus is back in Its The chorus is back 'n Its accustomed role in the Tobo Company's Meden. On the f-st night the beavens confined themselves the the odd spit — mercifully, aince the Japanese troupe (whose Macbeth was the sensation of last year's festival) are performing in the open air. The counterrate of the Univ

The courtyard of the Uni-versity'a Old College provides a setting not merely impressive but ultimately magnificently functional. Spotlights travel across the Corinthian columns and darkened Georgian windows, and move along the steps of the terrace. Medea's children are esben wraiths, their faces as chalky as their white robes. Prediciably, the visual side of Yukio Ninagawa's production is groin. Earlier she has struggled, abocked against the passion of including souped-up classics and ber brother'a kiss. Colin Bruce, e fine Laertes, goes berserk guitar, is less successful. The after her death, slapping him-self as be keens, just as Hamlet tried to throttle himself in "To cealed hy dark veils from the bas or not to be "Whon David rim of each round, flet hat. To a clap of thunder Medea appears in glittering robes, metallic pendants dangling from her head dress, false naked breasts

lending ber the air of a Beardsley Herodiae. This is, however, an all-male Medea (the offstage cries of Medea (the onstage cries of grief were disconcertingly gut-tural). Last year's Macbetb, Mikijhro Hira, musters enough femininity from body move-ments to flirt sinuously with Aegeus (black and gold stripes). This Medea discards based decor subardid sturces head-dress, splendid surcoat, robe and breasts, transformed into a sexless figure in long russet dress and balaclava when

spectral father whose voice is heard, not too distinctly, from various points above us. Pre-sumably unbalanced, this Ham-only wender at the famed tolerance of liberal Scandinavia. Mr Threifall is always watchable, not always intelli-tible. He must beware of the effect is operatic. Words court less then the aesthetic convention, here highly choreo-graphed movement—as when the Chorus flaps like black, panicking birds behind the murderous sorceress as she marches in to kill ber children. gible. He must beware of They move in a slow circle in adopting a Bluebottle voice hieratic poses before surging from The Goons — his advice across the courtyard in terror to the players was omitted. at the offstage slaughter. Medea their supposed betters. The totat provers was omitted at the onside angular aledea unspeaking courtiers dominate the Oxford Playbouse Hamlet, not usually considered a play that revolves round mute whet a Threfall Hamlet might bopes, firmly lo the end of a supernumeries. But from the be towards the end, if freed crane: a last visual thrill in a moment a white-faced figure of the supernumeries. Despite mis-reter that moving, monumen-a silent preamble with sinister calculations (Horatio's grating tal rather than human.

# Massenet in New York

Two of the City Opera's three in a vocal-studin way—expres- ae " a sophisticated 'storybook' new productions this season are of method " than presentation: Dore's drawings of Massenet: Werther and Don of spontaneous, searing emo-brought to life on the stage." Ouichotte. (The third is the tions. He has still to make During the brief prelude, a Quichotte. (The third is the New York premiere of Anthony Davis's X: The Life and Times of Molcolm X.) Along with revivals of Massenet's Gendril-

the progress from placing notes conscientiously to being a con-vincing, interesting character. Charlotte was Wendy White,

voulais avoir!," in the final scene, that he found it hard to continue. That kind of detailed. presentation: Doré's drawings brought to life on the stage." During the brief prelude, a imaginative verbal inflextion was missing in the City Opera troupe assembled and garbed was missing in themselves to play a Don performance. Quixote drama. The windmills Ramey has episode was feebly handled; little stage pr Ramey has a fine voice but

little stage presence. (Figaro is the only part in which I bave seen him fully alert). To create Carl Ebert (in 1965) managed

is not Cervantes', but something of the original feeling survives in both operas. Nothing much in both operas. Nothing much survived in the City Opera pre-sentations; nor was there much feeling for Massenet's own precise, delicate charm. These were coarsely generalised pre-sentations, with little command of period or of style. The singers, women and men alike, didn't even try to look their parts but got themselves no as parts but got themselves np as painted dolls. (Whoever supervises City Opera make-up has forgotien that it should be unnoticeable by the audience.) Charlotte, overpainted as if to suggest an actress or a harlot wore a lot of eye make-up and long false eyelasbes and had varnisbed fingernails. The musical manners were similarly

11

Noël "—is treated as a panto-mime of Werther's suicide. Mansouri has the reputation of being a "traffic-cop" producer — not one who reveals the passions or the poistancy of a piece—and he meintained it hy parading principals and chorus in dullest textbook fashion. fashinn

Jerry Hadley, singing the role for the first time, was the bero. This rising young tenor has recently been accused of bawi-ing: as Percy to Dame Joan's Anna Bolena, as Flamand in Capriccio. In a recent inter-view be declared thet Alfredo Kraus, not Placido Domingo. He should aim higher, should Insten to Clément, De Lucia, Schipa as Werther. His vocal schipa as Werther, His vocal schipa as Werther, His vocal the climaxes tended to blare

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\* Festival of French Opera. The works are sung (more or less) in French, while "super-titles" - phrases of an abridged English translation-are fashed onto a screek above the stage. Werther" is produced in picture-book fashion by Lotti maneouri, in sets by Thierry Bosquet that pupport to be inspired by Kenoir but are executed in insipid "pastel" shades. (Werther has lost bis famous yellow waistcoat.) Each words the met ablean within a painted frame. Act if the Met company stage. Allow of the score rather than being a "traffic-cop" producer - not one who reteries.

return it to ber in a scene where for a moment Dulcinea's heart Anyone tempted - as people Anyone tempted as people often are — to accuse the City Opera of lacking artistic serious-ness and ambliton could aup-port the charge with this Werther: singers going through is touched, and his is brokeo; and die with his faithful Sancho beside him. Quixote ie absurd but pure and good. The brigands

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Arts Guide

**Opera and Ballet** 

NEW YORK

Out-of-Towners Series (Dance Thea-ter Workshop): The ninth annual in-vitational dance, mime and perfor-mance whitwind features this week. Daniel Erzalow from Connecticut in Conspiracies and Collaborations (Mon-Thur). 19th St. W. of 7th Ave (224 0077)

New York City Opera (NY State Thea-tre): The week features Signond Romberg's The New Moon with

924 9077).

**Andrew Porter** 

### LSO's 1986/87 season includes

hali.

and Peter Donhoe.

new subscription offer

The London Sympbony cert" meals in the Cut Above Orchestra's 1988-87 season will open at its Barbican home on The 1986-87 programme Sentember 18 with some 37 under music director Claudio Abbado, will include soloists concerts before the end of the year.

recognize it; Dulcinea finally does; Sancho brings the fourth The orchestra is also offering

and Carr (870 5600).

(Floating Rate Notes)

Bertini. celebrate the 25-year sponsor-ship of the LSO by the Peter Stuyvesant Foundation.

Leigh Munro as Marianne, Richard White as Robert and Richard McKee as Besac in Robert Johan-son's new production conducted by Jim Coleman, along with Cendrillon and Carmen. Lincoln Center (375 500)

Summer-Stage (Central Park): Free new dance series. Diane Martel, Wendy Perron Dance Company (Wed); Sally Gross and Company, Terry Creach/Stephen Koester (Thur). Bandshell at 72nd SL 6pm (387 3156).

S A LUXEMBOURGEOISE

### Two queens/King's Theatre, Edinburgh

### **Andrew Clements**

Viktoria Mullova, Vladimir Ashkenazy, Rudolf Serkin, Anne-Sophie Mutter, Jose Feg-With the best will in the to do. But bow anyone, in their souod as if they were misbeerd world-and contrary to popular wildest fantasies, could have in Princes Street on a Saturday belief music critics do hope for believed that Sergey Slonim- night. Vocal lices - arid Krystian Zimmerman the best — it is impossible to sky's Maria Stuart was a work attempts at a kind of verismo judge the Maly Theatre's visit worth bringing to Scotland lyricism — are accompanied to Edinburgh as anything but defeats my Imagination entirely. either by beld chords or skimpy Guest conductors include, as well as the principal guest con-ductor, Sir Colin Davis, Yuri to Edinburgh as anything but an unmingated disaster. Simonov, Sir Yehudi Menuhin, The story of Mary Queen of Perhaps the opportunity to bear Scots is suitable meet for an a Russian company in two opera as composers as widely Michael Tilson Thomas, James Judd, Leonard Slatkin and Gery a Russian company in two Chaikovsky operas appealed to different as Donizetti and Thea Other events include an evening with the Count Basie Orchestra, and an evening to the planners; it is possible also that on bome ground in Leningrad tha production Muserave heve demonstrated. There is nothing intrinsically wrong either in Yakov Gordin's moved more coherently and the

noretto for Maria Stuart, based rather improbably on an essay by Stefa Zweig. No English translation was available but the 22 episodea divided into three acts appear to cover all belief in what they were asked the relevant historical happen-ings, assign an importent role August 22-28

Ravinia Festival of American Dance: A formight dance festival features the San Francisco Ballet with a LONDON Park.

des Halles. Quatuor Talich: Bartok, Ohana, Débussy (Wed 6.30pm). Auditorium des

### NETHERLANDS

Jenna Holburg Orchestra conducted by Gert Hofbauer. Waltzes and light opera. Konzerthaus. (Tue, Thur). Tokyo String Quartet, Beethoven Schumann. Schönbrunn Palace

NEW YORK Sad of Summer: Music, song and dance by Polish American Singers and Dance Company. McGobrick Park, Brooklyn. 6.30pm. Scott McIntowh, trumpet recital (IBM Garden): Part of the free Julliard Concert series. Tomasi, Koetsier, Fasch. Wed. 12.30 (56th & Madison). End of Sum Scott Mc

andon Philharmonic Orchestra con-ducted by Bernard Haitink. Elgar and Shostakovich. Royal Albert Hall (Thur).

night. Vocal lices - arid attempts at a kind of verismo ostinatos; the orchestra seemed to be there just to provide brasb, badly scored effects.

Stanislav Gaudasinsky's stag-ing just about gets principala and cborus on and off in the right places. The better of the singers were beard more rewardingly in the Chaikovsky's libretto for Maria Stuart, based operas though Olga Korzhen-skaya's Maria certainly pos-sessed the power the role apecifies, for making plenty of noise areas to he the extent of the work's ambitions.

Meanwhile, the Maly's Queen of Spades cootinued where its to John Knox (portrayed rather oddly brandishing a crucifix) Onegin (reviewed on Friday) had left off, with the chorus and set up the statutory con-frontationa between Maria and Elizabeth I. It is drametically apparently unable to keep to-gether, the principals out of tule, the acting style as subile as semaphore, and the lighting cootriviog to plunge the singers into total darkness for the first few moments of almost every

scene. The Hermann of Anatoly Kapustin looked at least 20 years too old for the role, and his rough and ready Slonimsky, on this evidence, his rough and ready anging hardly justified auch implausible casting: he was partnered by a Lisa (Valentina Yuzvenko) whose tone became Sionimsky, on this evidence, possesses neither of those quelities in the smallest meas-ure. Born in 1932 he is a professor at the Leningrad Conservatory and evidenlly a prolific composer. Maria Stuart is his third opera, first staged in 1981 and for which he won the Glinka Prize two years later. His score possesses no wearyingly bard-edged above the stave. Only Irina Boga-chova's Countess emerged with credit; here was a singer deter-mined to give a performance the Glinka Prize two years mined to give a performance later. His score possesses no kind of continuity, no that strident fortissimos were semblance of coherence. It not the only way to claim an lurches from one piece of badly endience's attention. It was executed pastiche to the next; neither e particularly subtle most emharrassing are the nor deeply penetrating por-attempta at local colour, trayal, but its stralghtforward ludicrous travesties of Scottish competence shone like e jewel dances and folk tunes which in such wretched surroundings.

ENO's autumn programme The English National Opera'a The other revivals are The

autumn season opens tomorrow Marriage of Figaro, Madame evening and includes two new Butterfly, Aida, and The Rape productions and five revivala. of Lucretia. of Lucretia

A restaging of John Copley's A new production of Gilbert production of Verdi'a 11 Trovo- and Sullivan's The Mikado by tore by Keith Warner begins Jonathan Miller, with Peter the geason tomorrow with Robinson conducting, opens on James Lockhart conducting. September 27.

レノロ

### Verona, Arena di Verona: Aida con-ducted by Daniel Oren with Awilda Verdejo in the title role, Nicola Mar-tinucci (Radames) and Bruna Bagli-oni (Amneris); Andrea Chenier, con-ducted by Gianhuigi Gehnetti, with Nicola Martinucci, Renato Bruson and Giovanna Casolla; Un Ballo in Maschera conducted by Gustav Kuhn, with Maria Chiara, Luis Li-ma and Silvano Carroli (28 151). A National Westminster Bank PLC Aligni, with maria Charta (Jans Le-ma and Silvano Carroli (28 151). Pompeli, Panetenee Pompeiane: Mi-khail Baryshnikov in works by Bal-anchine, John Taras, Anthony Tu-dor, Kenneth MacMillan and him-(Incorporated in England with limited liability) VIENNA Issue of U.S.\$ 500,000,000 PRIMARY CAPITAL FRNs (Series "C") self, with the American Ballet Thea-tre (from Tue until the end of the month). (474 3718). Pesaro Rossini Opera Festival, Teatro Rossini: Il Turco in Italia, conducted by Rico Saccani and directed by Egisto Marcucci: Biance e Falliero (at the Auditorium Pedrotti) with Marilya Horne, Katia Ricciarelli and Chris Merritt, conducted by Donato Renzetti and directed by Pier Luigi Pizzi, who also designed self, with the American Ballet Thea-(Wed). In accordance with the provisions of the Notes, notice is hereby given, that for the three months interest period from August 27, 1986 to November 28, 1988 NEW YORK the notes will carry an Interest Rate of 6 1/16% per annum. The interest payable on the relevant interest payment date. U.S.\$ 156.61 for Notes of U.S.\$ 10,000 nominal and U.S.\$ 156.61 for Notes of U.S.\$ 10,000 nominal and U.S.\$ 1,566.15 for Notes of U.S.\$ 100,000 nominal. Pier Luigi Pizzi, who also designed the scenery and costumes. (3 31 84). Acent Bank LONDON SPAIN **KREDIETBANK**

CHICAGO

ITALY

Bilbao, Faust, La Forza del Destino, Turandot, Tosca and Manon Les-caut. Alfredo Kraus and Ginseppe Giacomini and soprance Eva Mar-

Amsterdam, Oude Kerk. Addie de Jong, organ, and the Sweelinck Can-torij under Willem Vogel. Bach (Tue).

Hal

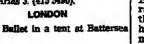
ine san Francisco Ballet with a mixed programme including e Willi-am Forsythe premiere, and the Twyla Tharp Company in a mixed programme including a work chore-ographed to a Philip Glass score. Ends Aug 31. Highland Park. PARIS Ends Aug 31. Highland Park. (728 4642). Billy Eddi, piano: One hour in Italy with Lindov, Liszt, Sacre, Saugust, Poulenc (Tue 6.30pz). Auditorium des Halles.

ton and Mirella Freni, Abao, Rodri guez Arias 3. (415 5490).

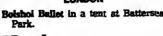
alngers showed a semblance of

theatrical competence might have helped that) but by no

demand.



means unworkable, given a composer with a feeling for music theatre and the ability to provide a score rich in the colour and incident it seems to



Music

### **FINANCIAL TIMES** BRACKEN HOUSE, CANNON STREET, LONDON EC4P 48Y

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Tuesday August 26 1986

# A taxing time for oil

**Reduced** incentive

use their huge reserves to regain control of the price. Unfortunately, governments can do little to ensure that

general tax concessions will be reflected in increased drilling rather than in bigher dividends.

Moreover, as oll prices and tax

PLEAS OF poverty by oil fields. Some argue that PRT companies do not, on the whole, should be abolished altogether. cause political pulses to race. Just as the US windfall profits The oil companies and their tax lapses below a certain oil

12

The oil companies and their shareholders bave ridden high for more than a decade on the surge of price increasea created by Opec, and they have not invested all those profits wisely. So, after cutting capital expenditures by 30 per cent to 50 per cent in response to the collapse of crude prices, it is only natural that they should turn to governments with demands for a lightening of the tax burden. tax burden.

The essence of their case, now being pressed bard on both sides of the Atlantic, is that present tax regimes were designed to cream off part of arguments: first, that a collapse the excessive profits made when of exploration and development the price of oil was two to four is already hurting employment times the cost of producing it. in areas such as Treas, Scotland, and the north-east of England; second, that dis-Now that the oll price is swinging between a half and a third of its value of a year ago. coveries made in the next few years will provide tax revenues and balance of payments benefits; third, that the West it is argued that the imports should be greatly reduced or removed. needs to discover all the oil it can before the Arab countries

On Friday the Norwegian Government showed itself will-ing to meet this case by announcing revised measures which will cut the tax take on new fields from the present 85 per cent 10 60 per cent, with a cut in the special petroleum tax (similar to petroleum revenue tax in the UK) from 35 per cent to 30 per cent.

### Smaller concessions

In the US a joint committee of the House of Representatives and the Senale bas recently agreed special concessions to the oil industry which would the oil industry which would greatly reduce the impact of the Administration's tax reform proposals. Oil companies would still have to pay an extra \$850m, but these would be taxes on corporate profits, not taxes on revenue. The US oil companles will no longer pay wind-fall profits tax provided the oil price remains below about \$19

per barrel. In the UK, the Government is engaged in a characteristic-ally shrouded discussion with given apecial incentives to add the oil industry about what to oil supplies while there is a further concessions might be made in the next Budget after they will have to take big risks the substantial reliefs for new developments cooceded in 1983. to find and develop the new These effectively abolished fields which the West will new These effectively abolished fields which the West will need special taxes for most new in time for the next shortage.

**B**OB TRUAX, with three balf-built rockets in the garage of his home in Saratoga, is feeling reasonably bullisb about the future for the US private-sector space industry. Mr Truax, a former US Navy engineer whose staff consists solely of 40 unpaid volunteers wbo work part-time from their

jobs in nearby Silicon Valley, plans an initial test flight next year, followed by a launch of a commercial satellite in 1989. The rocket entrepreneur's company, Truax Engineering, is one example of the type of organisation that President Ronald Reagan hopes to en-courage through his announcement, just over a week ago, that the US National Aeronautics and Space Administra-tion is to get out of the business oil producing countries includ-ing Australia. of launching commercial satellites.

At the other end of the cor-porate scale, several big US acrospace companies, including Martin Marietta, Hugbes Air-For Western governments the oil companies bave three good craft and General Dynamics, am to set up commercial launch operations to take over some of the roles previously performed by Nasa's space shuttle flast sbuttle fleet.

All the private-sector con-cerns interested in the commer-cial launch business base their plans on versions of expendatle rockets, such as Titan and Atlas-Centanr, which have seen service for two decades but as a result of the development of the shuttle fleet were on the point of being phased ont. While the shuttles return to earth after a mission and carry a crew, the expendable vebicles are destroyed in the process of

are destroyed in the process of taking objects into orbit.

rates come dowo, investment reliefs provide a mucb-reduced incentive to drill, especially at current oil prices. But com-panles such as Shell and Exxon As a result of President Reagan's decision, the three vebicles in Nasa's sbuttle fleet will be reserved for launches of military and scientific satel-intes together with manned misare not sbort of cash for any profitable investment. The progmatic argument for a major reduction in existing taxes is sions to explore innovative space activities. in materials

space activities. In materials processing for example. The three vebicles are to be joined to about 1991 by a fourth craft, a replacement for the Challenger shuttle destroyed in the tragic explosion in January which killed coron actionaute therefore weak, since the oil companies would find it difficult to show how the tax benefit would be cycled into specific investments. But for future developments which killed seven astronauts. The shuttles, none of which will fiy until 1988 pending oil companies should be treated no worse, though no more favourably, than any other companies. This is broadly the case in the UK sector of the will fy until 1988 pending design improvements resulting from the Challenger accident, wild also play a key part in building the manned space station which Nasa plans to con-struct by the mid 1990s. In theory, President Reagan's decision clears the way for the return to prominence in the US of expendable rockets, which firm grip on the commercial technology. The expendable vehicles are now in the annexes of bains to ut the technolagi can sort a figure, lower than that which bare caused fire accident.

now in the process of being which have caused five accideote re-evaluated. in 18 flights of the rocket, the

# Return of the disposable rocket

THE US SPACE BUSINESS

By Peter Marsh

E

The private sector's answer to the space shuttle

Fisette. Others among the heavy-weights of the US aerospace weights of the US aerospace bas been plugging away since industry agree. Hughes Air-craft, part of General Motors in the commercial launch sec-and the world'a largest satellite tor. Even though it has yet to huilder, says it is "very in-launch a satellite, Transpace terested" in moving into the commercial launch business, \$30m it has raised from ven-partly to guarantee ejection in-to space of its own space wehicles. vehicles.

the Challenger explosion — which could be lifting off from a naw launch site in the Pacific Ocean by 1988.

a naw latinet site in the ratine Ocean by 1989. The design for Jarvis, which would need \$1bn in develop-ment funds and would take off from Johnston Atoil, e military base near Hawaii, is based on rocket motors which powered the huge Saturn vehicles that took US astronants to the Moon between 1969 and 1972. As tall as a 20-storey build-ing, Jarvis would, according to Hughes, greatly cut the costs of delivering payloads into space. It would carry into the geo-stationary orbit up to six indi-vidual satellites weighing a total of 10 tonnes.

total of 10 tonnes. A key influence on the evolution of the commercial launch industry will be the US Defence Department, Although the Pen-tagon will remain a key custo-mer of the shuttle fleet, it will reserve most of its flights for missions where the presence of people is absolutely necessary. Such missions include experi-ments in areas such as sensor development concerned with the Strategic Defence Initiative, President Reagan's anti-missile

President Reagan's antimissile programme. The Pentagon will require expendable launchers to lift as many as 10-12 military satel-lites e year by the end of the 1980s. These will include com-munications vehicles. In the geostationary orbit together with navigation and survell-lance satellites that circle the Earth in lower orbits a few. The Pentagon will require expendable launchers to lift as many as 10-12 military sate-lites e year by the end of the 1980s. These will include com-munications vehicles. In the geostationary orbit together with navigation and survell-lance satellites that circle the Earth in lower orbits a few hundred kilometres high. To ensure adequate launch capability, the Defence Depart-ment has handed \$5m design contracts to four companies -Hughes, Martin Marietta,

ectively

Delta res

contracts to four companies are required and which will be---Hughes, Martin Marietta, come increasingly important General Dynamics and Mc-over the next couple of decades. Donnell Douglas--to investigate . There is a danger, says Dr new generations of expendable Max Faget, an eminent ex-Nasa rockets. Hughes will base its scheme on Jarvis, while the of Space Industries of Houston. General Dynamics and Mc-Donnell Douglas-to investigate. There is a danger, says Dr new generations of expendable max Faget, an eminent ex-Nasa rockets. Hughes will base its scheme on Jarvis, while the other three will aim to other three will aim to rockets they bave already deve-loped, the Titan, Atlas Centaur and Delta respectively. General Dynamics and Mc-max Faget, an eminent ex-Nasa engineer who is now president of Space Industries of Houston, of people forgetting the huge advantages in the long term nf space vehicles that return to carded once their that being dis-carded once their to be is done.

ded once their job is done. In about six months, the Pen- In essence, he argues that the tagon will choose one or pos- aerospace community should not sibly two of the contractors to lose its nerve and turn its back build vehicles based on these on the future. "The shuttle has been a designs. The rockets would see service in 1989 and would be tremendous step," says Dr the basis of any commercial Faget, "but really it is still only launch operations that the aero-space companies also move into. anything we need to use it more, Of the four giants, only Mc. not less, to build up experience Donnell Douglas says it is not and learn how to design the interested in running its own re-usable craft that will follow launch operations, arguing later."

JARVIS Hughes Aircraft Union-may need to order fewer space vehicles for the future as a result of the current

Much depends, bowever, on Mr Sam Dauncey, e UK space the speed with which the coosultant. fledgling US private launch Another question mark is industry can organise itself. over the overall demand for The companies which have satellite launchings. From the declared an interest in thie 18 commercial communicatioos activity are unlikely to have vehicles hoisted into the their rockets ready much heavens in 1985 — the tally before 1989. But that time according to owned by government organisas glut in communications vehicles now in orbit. According to Dr Meslin, demand for satellite launches may not be large enough to support the kind of private-sector US space industry that President Reagan has in mind. This is especially true if Japan and China, which hitherto have built rockets only for their own use, carry ont their plan to enter the commercial launch business over the next few years.

Others see these thoughts as extremely pessimistic. "There's an awful lot nf business out there," says Mr Bob Fisette,

to take Nasa out of commercial prospects are not bright enough: launch activities is "migbty McDonnell Douglas, instead, bealthy," according to Mr would build Deltas on behalf of a small Marylandbased com-

pany, Transpace Carriers, which bas been plugging away since

commercial development, says vehicles. The company has unveiled President Reagan's announce. grandiose plans to build a ment has "created the condi-powerful, three stage Jarvis roc-ket — named after Mr Gregory pany plans two flights in 1988, Jarvis, a Hughes engineer who was one of the seven killed in the Challenger explosion — optimistic than some about the total development, says ment has "created the condi-tions we wanted." The com-pany plans two flights in 1988, Mr Endres is considerably more optimistic than some about the total development, says ment has "created the condi-tions we wanted." The com-pany plans two flights in 1988, Mr Endres is considerably more total launch market for com-mercial satellites and says this could amount to 25 annually in the early 1990s.

For the other companies with their eyes on putting objects into space, the presidential de-cision will help mainly by cision will help mainly by signalling to potential investors that potting cash behind rocketry is not something only for cranks. "It will show people the Government is not going to be competing with us," says Mr Truax of Truax Engineering. Having run out of his first \$1m in investment - hence the unpald workers - Mr Truax is looking. for .another \$1m\$2m over the next couple of years.

Hnuston-based Space Services, beaded by ex-astronaut Mr Deke Slayton, has raised \$10m so far to finance development of its four-stage Conestoga rocket. It needs another \$50m, according to Mr Mark Daniels, apecial projects manager. Space Services is talking to 12 com-panies about various launch panies about various raunch projects, says Mr Daniels, most of tham involving ejection into space of fairly small payloads for jobs such as taking pletures of the Earth's surface for

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# **Non-executive** directors

ALL PUBLICLY quoted com- the affairs of companies which panies should have a strong have lost direction. Thorn-EMI

panies sbould have a strong have lost direction. Thorn-EMI, leavening of non-executive Beecham and STC are notable directors on their boards. This examples. view bas become an article nf But non-executives are not a faith at the highest levels in cure-all. In the US, the New the Cily of London, to the with that arguments are now listed companies to have at being made for an amendment least two nutside directorsleast two nutside directors-which does not stop them from to the Companies Act which which does not stop them from would force companies to take being treated on occasion like would force companies to take being treated on occasion like on outsiders. And, confronted Chrisimas tree decorations. The with the challenge to their board of Allegbeny Inter-authority posed by the board national bas boasted such of Guinness in an affair which powerful outsiders as Mr has stoked up an extraordinary Alexander Haig, the former level of heat within the Square Secretary of State, and Mr Mile the response of the Bank Anthony O'Reilly of Heinz, but of England and the Stock is was only after while even of England and the Stock it was only after public expo-Exchange has been to push sure of extravagant behaviour Guinness into appointing a nver a period of years that the number of strong non-chairman was forced to resign executives with specific respon- this month. sibilitics over the management.

Yet the chances are that the **Real power** newcomers will have their work

cut out to exercise significant influence on the company. During the course of its bld for Distillers, Guinness pro-mised to appoint a Scottish non-executive chairman and a of success, shows signs of over-reaching himself or of staying holding company board. After the battle, it changed its mind and announced in an offhand way that its chief executive was on for too long. That is when non-executives need to be will-ing to make waves, and when to combine his job with that of they need to he seen within chairman. This caused great offence, not only because Gulnness was going back on cnm-mitments made in public docu-ments, but also because in doing so it seemed to be sug-gesting that the main task of non-executives was to rubber stamp the executives' decisinns.

In the City's view, the job of ils new outside directors will to exercise a restraining Influence nn a management team which is widely admired for its operating skills, but which has shown itself in this affair to be both autocratic and bam fisted in its dealings with the wider community.

### **Powerful outsiders**

This is asking a great deal of tives' pay, and their euthority the new meo. Outside directors, cannot be removed without the if they are any good, can be of approval of shareholders. But if they are any good, can be of real value in broadening a management's perspectives. A good example is that of ICL, which has taken on very senior industrialiate from Japan and good example is that of ici, ingress to take end maintain which has taken on very senior a genuinely independent line. industrialiate from Japan and This is not a particularly thrill-the US with precisely this in ing outcome in the affair, but mind. And there have been it is the beat thet is available. mind. And there have been it is the treat ther is available, several recent cases where non-executives—in the abape of one panies will see the merits of or two forceful individuels— strong outsiders without having have intervened decisively in their arms twisted.

now in the process of being which have caused five accidence in 18 flights of the rocket, the a figure lower than that a further experience with shuttle. At least until the US gains company looks likely to launch projected a few years ago, further experience with shuttle. Sello commercial satellites a makes sense because satellite year by 1988, charging some companies are moving towards appear simpler, less costly and setter suited for one key job are, however, suspended until for which the shuttle was used; early next year while engineers of several less complex space-investigate the run of mishaps. Craft. "President Reagan's decision strengthens Arianespace's posisynchronous orbit 36,000 km above the earth."

ATLAS CENTAUR

General Dynamics

3.800

Martin Marietta | McDonnell Douglas

TITAN

Much depends, bowever, on Mr Sam Dauncey, e UK space

DELTA

Brussels-based vice-president of Dr Meslin believee that such Martin Marietta International. Martin Marietta bas announced plans to start commercial launches using Titan rockets previously reserved for carrying large satellites for the US Defence Department. The company says it has already received 21 inquiries from com-

mercial organisations about satellite launches,

President Reagan'a decision

A whole new

ball game

The Amazin' Mets, New York's fabriculty successful baseball team, has been hitting home runs all season in the beaddines of the sports pages. But atten-tion is turning to the Mets' per-formance in the business sections.

It links as if the Doubleday publishing group, which owns the Mets, may be putting itself up for sale, and if it does, the value of the team's franchise will be one of the hottest issues in US energy. in US sport.

According to Wall Street, the Dillon Read investment bank has recently put together a financial document to circulate to potential acquirers—includ-Outside directors have per-baps their most crucial and difficult role to play when a forceful executive, who has been used to getting his own way and has a long record ing, it is sald, Robert Maxwell. Doubleday, a paternalistic private group run by Nelson Doubleday, has been ambiguous about its intentions. But the company went through an ex-ceptionally difficult patch in the early 1980s and is barely profit-able in its publishing operations as a whole. If the family were to sell,

the company itself as a lot more than just a necessary evil. it might be advantageous to do it as soon as possible before the proposed new tax hill with-With this in mind, Beecham is planning a structure in which outside directors will have real powers to curb an over mighty draws some capital gains conchairman in the future. Among cessions.

The Mets appear to be by far the most attractive asset in other things, they will nominate their own successors-too many outsiders are their chairman's the Doubleday empire with net income of about \$9m in the publishing group's latest finan-cial year. Nelson Doubleday bought the team six years ago for what then seemed the ridiaucher in the seemed the cronies-and they will bave a chance to study acquisitions and rights issue proposals before they are put to the full board. As a fully integrated system of checks and balances, this looks an interesting model for other ridiculously inflated price of \$21m. The Mets were then propping

companies. Guinness ie not going this far, although its new directors will up the bottom of the National League East and had run up the lowest attendance in big-time basehall—around 790,000. this year, fielding a star-studded side of explosive youngsters and canny old have powers to remove the chairman and to fix the execuin the circumstances, their real soldiers, they will probably pull in almost 3m paying customars power will depend on their will-ingness to take end maintain at Sbea Stadium,

They also look set to run away with the league title and bookies are running them as hot favourites for the World



may look relatively chesp given some of the earnings multiples paid for entertainment groups, it would be double the previous record for a baseball team established when Thomas Monaghan, a pizza fast food multi - millionaire, acquired Detroit Tigers for \$50m in 1983. One strong possibility, howarrive at the auction block, even if the rest of the Double-day is sold, because Nelson Doubleday remains highly attached to his baseball.

### Rosen's rise

\$100m.

Not many people are likely to claim they have benefited from the Chernobyl nuclear accident which killed 31 and spread radioactivity worldwide.

But one is Morris Rosen, the American physicist who heads nuclear aafety activities of the International Atomic Energy Agency in Vienna, hosts to this week's international "post mortem," Dr Rosen was one of three top IAEA officials the others were a Russiao and e Swede — invited to Moscow, and even to fly over the stricken reactor shortly after the accident.

Until then his promotion to an assistant director-general nf IAEA was blocked by the Russians. Chernobyl changed all that. After 10 years with the agency he has won both promotion and a \$2.1m boost in bis budget for nuclear safety this summer.

Rosen is the nrchestrator of the place to begin is the small the "post mortem" meeting which today gets down to business. The hundreds of international nuclear experts by "exceptional circumstances" Series, baseball's top champion-ship. Conservative estimates put ments to answer the question: total includes £275,000 from the Mets' value at around could it happen in our country?



"This morning's has joined np with the end of the Bank Holiday jam and people trying to spot the road-widening scheme."

Topped up Ernest Saunders is a forceful man and bas upset more than just the Scottish establishment with his change of heart last

month over the top jobs in the Guinness Distillere drinks combine. Post permitting, Guinness sbarebolders will now be savouring the "revised board structure" proposals sent out on Friday after long talks with the Stock Exchange and other regulatory bodies. Interest rates. Now the 56-year-old Austrian-born economist is stepping aside as chief economist at First Boston although ha will con-tinue as a managing director and senior adviser to the firm. First Boston explains: "His

£195,900 in the year to last September, in turn almost a third up on his 1983-84 salary -and the equivalent of £75.000 from Guinness Inc and Arthur Bell's Bermudan offsboot.

But the publisher of the Guinness Book of Records still bas a long way to go to catch up with the field leader in the salaries stakes-Richard Gior dano of BOC with £883,100 in 1984-85. Saunders has leapt from 33rd to seventh in the salaries league leaving James Gulliver, chalrman of Argyll, the frustrated bidders for Distillers, well behind in 36th place on £119,000 after a 90 per cent increase. But the Guinness chief ranks bebind Giordano, Ralph Halpern, Gerald Ronson, Richard Ringwald, Tiny Row-land and Brian Christopher.

### **Death departs**

Among the Wall Street gurus two men, Dr Henry Kaufman of Salomon Brothers and Dr Albert Wojinlower of First Boston, have reigned supreme for more than a decade. With Wall Street seemingly hanging upon their every utterance, their often bearish pronouncements in the mid-1970s could send the markets reeling -earn-ing the two men the respective nicknames "Dr Doom" and "Dr Death."

Since then Dr Wojnilower, who once likened tha deregu-lated US financial markets to a casino, has turned more bullish. Recently he has been arguing that the Fed should continue easing and that the huge US Federal Budget deficit will have little impact on

workload was getting to be too much." So Dr Wojinlower will give up being a full-time econo-mist and Fed-watcher in order to devote more time to his supervisory role.



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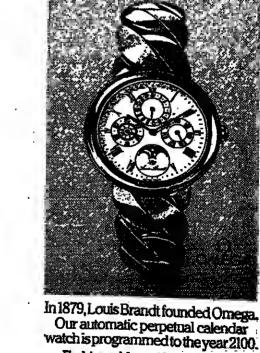
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a hand engraved movement.

It may be seen at only a few,

carefully selected jewellers.



LOUIS BRANDT

# THE ANGLO-IRISH AGREEMENT Facing more scepticism than ever

in soj

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From the Government's point of view, things have not gone too by killing not just policemen badly. It is true that the RUC and soldiers but also mounting polica many parade ended in violence.

alist community and the Irisa streets, government. A special meeting This

THIS WAS to have been Northern Ireland's long hot summer when the battle between the Britisb Government and the Unioniat community over the Anglo-Irish agreemen; the "marching saason" of tradi-tional Protestant parades. As polltical efforts to try ta break down tha overwhelming Unionist opposition to the accord got nowbere in the early months of the year, Loyalist threatened to use the annual marches, mostly commemorat-ing victories by William of Otange over Catholic King James II in 1690, to break down the Agreement. Supporters of the Agreement, rejected by Unionists for giving Dublin a say in Northern affairs without their consent, felt such

Dublin a say in Northern affairs without their consent, felt such threats to play the "Orange card" which in the past had aucceeded in blocking political initiatives bad to be confronted before progress could be made. Now that the marches are almost over, how bot bas tho summer been? Has the "Orange Card" been faced down and what

summer been? Has the "Orange. On the other sate, the star card" been faced down and what Republican Army, opposed to seems to lie ahead for the the Agreement for different. Agreement? the conflict and bait Protestants

and Britisb troops had to be a murder campaign against deployed in large numbers to civilians working for the polica many parades which security forces. The other feature, especially

ended in violence. The other feature, especially Portadown, in County of recent weeks, has been the of recent weeks, has been the emergence of Mr Peter Robin-son, Mr Paisley's deputy and MP allowed by police to parade twice through a Roman Catholik which almost certainly averted greater vinlence but which alist community and the Irisa

government. A special meeting This group is comprised of the Anglo-Irish conference mainly of DUP supporters and had to be held to smooth over members of the Ulster clubs, a had to be held to smooth over. the issue which angered the lrish because Dublin felt atrongly that the commitment by both sides in the Agree-ment to treot both communities in the North cqually implied that provocative Protestant marches through Catholic en-claves should be stopped. Overall, though, the Govern-ment could claim that the security forces were able to cope with the violence that arose

security forces were able to where the Anglo Irish Agree-cope with the violence that arose and that there was little or no sign of dissent within the ranks of the predominantly Protestant RUC which Loyalists such as the Reverend Ian Paisley, leader of the Democratic Unionist Party, had predicted. Nor has there been, thus far, a repeat of the attacks on police homes of the attacks on police homes the attacks on police homes and families by Loyalists that



Mr Peter Robinson (left): pushing Paisley aside?

Clontibret escapades, the RUC was tipped off and managed to prevent other demonstrations taking place. Certainly, these Loyalists have not proved much yet and it was notable that the thousands they boped would attend Mr Rohinson's court may emerge. Within the OUP there is almost abject despair that thearing in Dundalk earlier this month turned out to be fewer

hearing in Dundalk earlier this ing momentum. This month, the folowing months, land fiself that it is a swas month turned out to be fewer Mr James Molyneaux, the OUP The main concerns here in-than 150. Intended — the right formula However, the eclipse by the any contact with the media. As and Emblems Act, which re-hardliners of the Official a senior aide said, be was in an stricts the display of Nationalist expense of the IRA.

impossible position, unable insignia in the North, greater either to endorse or condemn recognition of the Irish lan-the antics of Mr Bobinson, now guage, changes in the police more than ever the beir-apparent to Mr Paisley as the forms of the judicial system. most uncompromising of Unionist leaders.

tion.

apparent to Mr Paisley as the forms of the judicial system, most uncompromising of Unionist leaders. The problem for the OUP, or any Unionist with any clout largely symbolic. But the British who would like to get back into a dialogna with the Govern-ment, is that the terms for doing so aimply do not exist. Any attempt that took place while the Agreement pro-gressed would be bowled down by the bardliners. The fate of Brian Faulkner, the Unionist stran Faulkner, the Unionist suningdale powersharing deal with Nationalists and was

while the Agreement pro-gressed would be bowled down by the bardliners. The fate of Brian Faulkner, the Unionist leader who agreed to the 1974 Sunningdale powersharing deal with Nationalists and was drummed out of Northern Ireland politics as a result, is Unionists' inclination to deal with Data agreed to the agreed to the sine Unionists' inclination to deal with Data agreed to the sine Unionists' inclination to deal with Data agreed to the sine Unionists' inclination to deal with Data agreed to the sine Unionists' inclination to deal with Data agreed to the sine the British and the issue the british agreed to the sine the sine the sine sine the two governments. for the two governments.

with Dublin, narrow as it is, was even further ended in June when a proposal to introduce divorce in the Republic was defeated in a referendum, re-inforcing Protestant fears of the influence of the Catholic Church in the South.

This virtually rules out any hope that ouce tha marching season is over, conditiona might exist for progress under the Agreement towards all-party contact in the province. Mr John Hume, leader of the Catholic Social Democratic and party contact in the province. been. But they are no more in Mr John Hume, leader of the a mood to compromise now than Catholic Social Democratic and before. They will react angrily Labour Party, has said be to almost anything the accord believes that in the autumn produces and are bound to some Unionists may emerge mount some show of strength ready to talk. But the British to mark its first anniversary on and Irish Governments seem November 15. resigned to the fact that this will not happen for soma time

What they are left with is a series of measures being dis-cussed within the inter-govern-mental conference which, in the words of Mr Nicholas Scott, the Northern Ireland Minister, are designed "to reassure nationpolitical agreement. alists" whose support for tha Agreement is vital if it is to have any success. Much of the thrust of the Agreement was to tackle the alienation Nation-alists felt from the system of government in the province and thus undermine support for the IRA and its political wing, official, the step down that road was not to trump, but to erode, Sinn Fein. the Orange card.

The inter-governmental conference will start meeting again kons, the agreement is still in September after its summer break, and both governments have signalled that a number of decisions will emerge over the flolowing months,

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Lombard All tanked up but nowhere to go By Max Wilkinson

SPARE A thought for the poor fineries in the UK. These petrol companies as you race refineries sell petrol to competi-pest a pump offering four-star tors which then undercut them. at 165p a gallon. They ara faced They do it because there is still with an appalling propaganda about 20 per cent over-capacity problem.

For the fourth time this year they are starting to prepare the public for a concerted rise in pump prices, boping to repeat the exercise of the second week of August when, by all pushing together, they managed to get four-star up 7p to 165 a galon. A faintly ludicrous pattern bas now been established. It starts with one petrol company briefing the press that margins have shrunk to an intolerable thinness. A few days later an-In sum, the autumn looks as though it may be as tricky as

thinkess, A few days fater an-othar oil company announces that it is compelled to put up prices and after a decent inter-val of about three days all the other companies have been "compelled" to follow suit. the summer, complicated by the growing likelihood of an early election facing Dr Garret Fitz-Gerald's Fine Gael-Labour coali-

By this means the companies avoid falling foul of competi-tion laws which would force them to register any concerted Loyalist opposition may not have halted the Agreement as agreement to fix prices. Not for them the furtive telephone calls or a smoke-filled room at the back of the Athenaeum; it intended and the two Unionist parties are probably further spart than they bave been. But they are no more in their exchange is such that con-spiracy could not possibly be discovered. It is on the front pages of the national news-pagers. Petrol prices exert a peculiar fascination over the British public, perbaps partly because of the annual Budgat

To many Unionists outside the two communities and put the two communities and put ritual. However, so far this year the petrol companies themselves have torpedoed each concerted price rise much faster than the Office of Fair Trading could back any prospect of all party Office of Fair Tracing could bava boped to do, Soon after each price rise, competition between the 60 to 70 whole-salers supplying the 20,000 petrol sites has eroded the price again. As a result the present price of 165p is 22p below its level in February and still well below the 175p which one large company says it needs The reaction of the two governments to this is that the Agreement was only the start of a long process of showing Unionists that any political settlement in Northern Ireland must be on the basis of equality for Nationalists. This summer, said one Irish Government

So, as the new season becmore or less on course, but prob-ably facing more spepticism than ever within Northern Ire-land fiself that it is — as was

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They do it because there is still about 20 per cent over-capacity in the European refining indus-try and a smal lextra through-put can make a significant difference to the overall profit-ability of a refinear

difference to the overall profit-ability of a refinery. This is why the three major operators, Esso, Shell and BP, which supply more than half of the UK's petrol, bave effec-tively lost control over the mar-ket. It was not always so. During most of 1985 when a weakening dollar pushed the sterling price of crude oil down weakening dollar pushed the sterling price of crude oil down steeply, the oil companies managed to maintain impressive control. Although prices eased slightly from their high point of over 200p in March 1985, their margins improved by the final quarter to levels which they had not enjoyed for many years

This year, however, the fall in crude prices has been too much in the news for its effect on pump prices to be ignored. In case anyone should forget that refiners bad accelerated out of the years of lossmaking or low profits, Mr Lawson re-minded everyone in his Budget speech, just to get the ball rollng, so to speak.

Yet the oil companies bave a relatively good case. Because nearly 70 per cent of the price at the pump represents excise duty and value added tax, a fall in crude oil prices has much less effect on the price than most people seem to expect. The cost of raw materials is now only about \$2p per gallon.

Yet whatever the oil companies say about a "fair return," the fact remains that there is still considerable over-capacity in the refining industry. The harsh laws of economics say that free com-petition will reduce margins until the least efficient prostill well below the 175p which one large company says it needs to make a 12 per cent return on its assets. Where dn all these whole-salers get their cheap petrol make a quick profit by picking up cheap cargoes on the Rotter-dam spot market and selling at a discount in the UK. However, most of their supplies companies (including all the best known brand names) which have re-including all the best-known (including all the best-known are now prety similar, that brand names) which have re-including all the best-known are now prety similar, that brand names which have re-dan spot market and selling at prime the transformation of their supplies companies about and cannot make work-a price cartel.

Exchange rate stability

From Mr J. Williamson

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SIL ments (August 13) regarding the need for a more competitive sterling exchange rate are com-pelling. And, as it happens, h's estimate of a sensible target for the DM/sterling rate (2.80) is very close to my own.

Nevertheless, the particular phrase that provoked Samuel Brittan (August 7) was unfor-tunate. No one should want in see the exchange rate " set on a female dealing wath " for the see the exchange rate "bat on a firmly declining path," for this would both perpetuate the high interest rates that are now being used to prop up the pound being used to prop up the pound at too high a level and act is an open invitation to a re-occeleration of wage inflation.

What is needed is not a de-What is needed is not a de-clining trend for the exchange rate, but a once-for-all down-ward odjustment to a realist c level. From then on policy should aim to keep the rate roughly constant in real terms, nulces and until evidence roughly constant in real critical nales and until evidence develops that Muellbauer's esti-mate of the real rate needed to sustain a revival of British manufacturing is mistaken.

manufacturing is mistaken. If infiation can be controlled by the aort of measures en-dorsed by both Brittan and Muellbauer, a constant real ec-change rate will be compatible with a constant nominal er-change rate, or even with some nominal appreciation. To the ec-tent that the British economic establishment always seems so balf-hearted in its commitment to the objective of price stalbair-nearted in its communent to the objective of price stall-lity and that John Muellbauer's phrase suggested sympathy with this position, one can under-stond Samuel Brittan's stric-

tures. John Williamson, (Senior Fellow), Institute for International F.conomics. 11 Dupont Circle NW. Washington 20036, USA.

The BMA and

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tobacco

tobacco From Dr G. Myddellon Sur.--The statement by the Government's Chief Mcdical Officer that smoking causes about 100.000 deaths in Britan per year. quoted by Dr John Dawson on behalf of the British Mcdical Association (August 14), has no scientific validay and is based purely on dubious statistical evidence.

statistical evidence. I presumo the figure has been calculated by adding the 40,000 odd deaths from lung cancer. all assumed to be the result of smoking, to some 60,000 out at the 160,000 or so deaths from conary heart disease, also csumated to be tho result of clareties. Whetever toxins in crigareties whoke are considered to be the causes of these two totally different diseases it is a coincidence beyond belief that both should only occur in

as for non-smokers, and nobody has yet found a single chemical agent in cigarette smoke which does not also occur in pipe and cigar smoke. Further scientific research into all possible causes of lung cancer and beart disease is urgently needed and the British Rosehill

Medical Association should be demanding such a programme rather than indulging in mere propaganda. (Dr) Geoffrey Myddelton, Blue Moon, 1867 Glutieres-sur-Olon, Vaud, Switzerland

### Shortages north of Watford

from London's airports. But, however well it can cope now, Manchester airport is, likewise, beading for a capacity problem. Least than eight years ago Gat-wick—then, also, "an uncon-gested bub"—was handling e volume of air traffic broadly comparable with that through Manchester airport today. Now, Gatwick is approaching satura-tion on its aingle runway. There is every indication that the Manchester bnb (also with only one runway) will be in a simi-lar situation well ahead of the time (around 12 years) which experience shows has to be

experience shows has to be allowed for the consultations,

cigarettes and not in pipe or cigar smoke. Statistically the death rates of pipe and cigar prospect seriously so that our smokers are virtually the same snccessors do not find them-servers and nobody selves with inadequate resources to the great national dis-- to the great national dis-advantage - when the 21st Century begins, less than 14 years from now. (Sir) Peter G. Masefield. Doods Woy,

Letters to the Editor

Reigate, Surrey Price, choice and design

And design From Mr S. Gregory Sir,--Nick Garnett's note on the risks of cost - cutting (Auugst 8), followed by Mervyn Unger's letter (August 16) on price and choice, have been underlined by the Euro-report aummarised by William Dullforce (August 18). This suggests that Britisb industry virtually specialises in low-value products. There are alternative com-

been underlined by the European Management Forum From Sir Peter Masefield Sir.—I am sorry that Mr B. R. Dewing (August 18) and the chairman of Manchester Air-port (August 19) take such short-term, and parochial, views of the looming need for additional airports capacity in the UK — not only south of air traffic thirthe during the past 12 months through Manchester's excellent diversions of traffic thirthe diversions of traffic thirthe diversions of traffic thirthe through Manchester's excellent stanport. He looks for future diversions of traffic thirthe diversions of traffic thirthe diversions of traffic thirthe through Manchester's excellent stanport. He looks for future diversions of traffic thirthe diversions of traffic thirthe diversions of traffic thirthe through Manchester's excellent seeding for a capacity problem. Less than eight years ago Gat-wick—then, also, "an uncon-gested bub"—was handling e volume of air traffic broadly comparable with that througb Manchester airport today. Now, Gatwick is approaching satura-tion on its aingle runway. There

Fruitless search

From the Chairman, Pirbic Group Sir, — Because we will need

to use one, we recently wrote to 12 financial public relations

a new and more impressive logo, but when we looked at their logos wa found them drab and unimpressive. One agency had the most scruffy and untidy reception area and obviously had not considered the importance of creating good first impressions.

sent themselves to a prospective client. Two of them imme-diately told us that we needed

We settled on one of the three, and the managing director and another director visited us and asked many questions. They promised to present their proposals to us quickly.

For three weeks we beard nothing. We then telephoned and were told that they were intending to telephone us that very day! An appointment was made for the presentation, but two days before the event a postponement was asked for. Another date was made, but

we received another phone call, ooce again postponing!

From Sondra Champness Sir,-One would be bard pressed to find a more whinge-ing article than that published on August 18 in your architec-ture column.

Quite obviously, the new Lloyd's building has faults Lloyd's building has faults which must be remedied but it was becoming obvious that the old Lloyd's building in all fis white-marbled elegance was beginning to fall far short of requirements. There will always be those who deplore change, but with its recent sad history Lloyd's can well do without this minor

can well do without this minor carping to add to the problems. It is a pity the "Lloyd's mem-ber" was not prepared to be ber " was not prepared to be named particularly since, as be so self-righteously points out, be was one wbo "did not fall for it" when plans for the stunning new building were originally drawn np. Sandra Champness.

Stoneraise, Plummers Plain, Horsham, Susser,

### Choices in

cheques

From Mr K. Tunstall.

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# **FINANCIAL TIMES**

Tuesday August 26 1986

RESERVE BANK SAYS ECONOMY 'SUBDUED BY LACK OF CONFIDENCE'

# SA capital outflow hit \$1bn in first half

### BY ANTHONY ROBINSON IN JOHANNESBURG

tours of the site offered to all visi-

tors to the exhibiton. Total jobs as-

sociated with the centre and tours

What has surprised BNFL is that so many people have been willing to travel so far to see what looks

UK plans to try gilts auctions

THE BANK of England plans a trial of funding for the Government's new and more heavily capitalised

bave risen from 18 to 30.

THE SOUTH AFRICAN economy, year will be in the 1.5 to 2 per cent hit by social unrest, remained subdued by "a lack of confideoce and a pervasive sense of uncertainty about the future" despite the prospects for a more vigorous upturn, the country's Reserve Bank said in its annual report, released at the

A continuing capital outflow of R2.64bn (S1.02bn) was recorded over the first balf of this year. The recovery from the 1984-85 recession which began in the third quarter of 1985 faltered in this year's first with foreign creditor banks. The

It regained momentum in the secwhole. ond quarter, but because of the weakness over the first half as a weakness over the first half as a A lower volume of gold exports whole, the hank estimates that real gross domestic product growth this to a reductioo in the first-quarter

current account surplus to an annurange, rather than the 3 per ceot alised rate of R4.3bn. But this regrowth forecast at the time of the covered in the second quarter to an annualised rate of R6bn. "A surplus March budget.

\*Perceived threats of intensified economic sanctions and oews of a whole," the Reserve Bank said. continued social unrest" were the main factors behind the outflow of

"A disturbing feature of the ex-penditure trends in the year to mid-R1.56bo of short-term capital in the 1988 was the behaviour of real gross first half. The RL09bo loss of longfixed capital investment which conterm capital reflected repayment of tinued oo the downward course it has found itself on since the first foreign loans under the debt standstill introduced in September last quarter of 1982." Because of lower year and subsequent negotiations investment, the paring of inventories and the recession the volume of imports declined by 13.5 per cent in the four quarters to mid-1986. outflow follows a revised capital outflow of R9.23ho in 1985 as a

> The decline in private sector investment was exacerbated by cuts in public sector investment espe-

cially by South African Transport Services, the railways and barbours upturn." authority, which cut investment by

17 per cent in the year to end June of the order of R5bn to R6bn may and the electricity corporation Es-reasonably be expected for 1986 as com, which trimmed its investment spending by 28 per cent.

> High inflation and rising unemployment led to a 7.7 per ceot decline in real incomes in the first quarter of 1986 and this, together with an increase in the savings ratio, contributed to the weakness of consumer demand and faltering growth

> > Despite the absence of a "more spirited revival" in consumer demand and the persistence of uncertainty about the future, the report 16.9 per cent to 16.2 per cent. said: "A variety of cooditions have been created that eventually should

prove conducive to a more positive These include the relaxed stanc

of monetary policy, low interest rates in real terms following 11 re-

ductions in the bank rate from 21.75 Mr Holmes à Court's polite but agto 10.50 per cent between May 1985 and August 5 this year, and the gressive letter to USX is not entire-more expansiooary approach to y accidental; and the link will not Governmeot speeding. The report also cited the effect of rand depreciation which both dis-in such comby-perturb takeover

courages imports and encourages markets as Wall Street and London exports and raises the domestic val-If the Australian eotrepreneurs, as ue of export proceeds. At the same imaginative a bunch of people as ever graced a boardroom, cannot time, however, the inflatiooary efsupport their stock-market ratings fects of rand depreciatioo remains a out of their home market, they will major coocern, especially after the rise in the July inflatioo rate from be looking for growth where English is spoke and assets are cheap.

The foreign exchange and fixed-interest markets thought at first they liked a budget specially tai-lored to their preoccupations. Bond yields climbed up again and the Australian dollar lost its modest Clash with Mozambique, Page 2

When Australians start to roam sation of the sector comprises Guin-The coincidence last week of a deflationary Australian budget and ness and Grand Metropolitan.

THE LEX COLUMN

ty in Australia, it will came from a loosening of the rules on foreign investment for, say, Japanese expor-ters who need a cost base in other than yen or UK companies who might want to buy their Australian minorities at a discount.

Whether Mr Holmes & Court has bought shares in USX, time (and brands and the best sites, and that the SEC filing) will show. Whereas might also mean Bass. Wall Street has been looking at a strike-bound steel and energy com-regional brewers beavily exposed to pany, whose share price is back at the shrinking ale side of the beer its 1982 level while the market has business, and without the financial doubled, an Australian would be reminded of what BHP looked like intense advertising battle. It is all three years ago. Given that USX's the more peculiar that the regionals steel assets are a relatively small have fallen only half as far as the proportion of the whole, and there nationals. If the result is closure of are substantial off-balance-sheet some of the excess capacity in beer plums such as an overfunded penplums such as an overfunded pen-sion scheme, Mr Holmes à Court long-term advantage to the major could be on the way to picking up some high-quality energy propert-ies on the cheap. The arbs were cer-tainly piling into USX last week. Mr Holmes à Court might even have decided that his credit lines are those with the best brands, unless A half-way house could be a rec-ommendation that tied pubs offer at

the owners tried to preserve their wasted on such a tiddler in a deressed economy as BHP and that guaranteed market by offering only the time might be ripe to depart such popular brands as Old Watery, with honour - and rather a lot of London Broker Wood Mackenzie

has argued that a recommendation to sweep aside the whole system would necessitate an inquiry into such matters as the vertical integra-The spectre of an inquiry by Brit- tion of oil companies. But petrol

ain's Monopolies and Merges Com-probably tastes the same the world mission into the supply of beer in li-censed premises has done notable injury to a sector of the market which had been high fashion. Since brewing companies would not be blight the lie is to be abolished, the blight tastes the same the world by price competition.

the runnours of the inquiry became obliged to divest, but could more ad-

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Sellafield a hit with tourists

### BY IAN HAMILTON FAZEY IN LIVERPOOL

THE CAMPAIGN by British Nu-clear Fuels (BNFL) to attract summer visitors to its reprocessing plant at Sellafield, in oorth-west England, has been so successful that new, permanent jobs have beeo created and special investment is being sought to improve facilities for next year, when the campaign will cootinue.

The exhibition ceotre at the plant has been packed throughout most of the school holidays, with many visitors making special day trips from all over the north of England to see it, rather than just calling in while on a holiday in the nearby Lake District.

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Numbers of visitors for this year are now expected to exceed 100,000 - against 30,000 in 1965. In July, the first month of BNFL's media promotion campaign, the figure of 10,000 was four times bigger than the same month last year. Wet weather in August swelled numbers towards 1,000 on some days.

The Seliafield reprocessing works has restarted after a fourday shutdown when levels of radistion which could have breached new government safety limits were found in waste due to be discharged into the Irish Sea.

nothing much more than a gigantic building site. Sellafield is at least 75 The centre is now to be kept open seven days a week throughout the year, rather than on weekdays only minutes from the nearest motorway and the journey takes up to 20 minutes longer if there is much during the winter. The exhibition ittourist traffic. self is to be doubled in size, taking over another floor of the building Surveys of visitors have revealed deep interest, and sometimes worry about Sellafield's activities, plus a which houses it.

desire by people to find out things for themselves. Have they been converted to Seliafield's case? A proposal is also being put up to the BNFL board to build a viewing platform nearby that will offer pan-Dr Bill Wilkinson, BNFL deputy oramic views of the vast site and chief executive and the directors in enable photographs to be taken.

charge of the site, says: "People don't necessarily think the place is the best thing since sliced bread, but they tell us that they leave a lot Some new jobs have been generated by the need to staff up the centre to cope with the increased better informed and much less conthroughput of people. In addition, guides have been required for the cerned than they were when they arrived." continuous flow of hour-long coach

# French N-plant mishap likely to delay opening

### BY DAVID HOUSEGO IN PARIS

THE opening of the Cattenom nuclear power station in eastern France is likely to be delayed after an accident at the weekend which led to the flooding of underground galleries during the final verification procedures on a reactor.

Officials of Electricité de France (EDF) said yesterday that there was no radioactive danger and that the galleries had been emptied of water. But the accideot spurred further protests by ecologists at the site and by the West German authorities of the Saar which is adjacent to the newly-constructed sta-

EDF yesterday believed that the mishap had been due to the premature opening of a sluice gate during preliminary testing of a reactor - al-though a gate unconnected with the reactor's main cooling system. An inquiry is, however, being carried

Because of its proximity to the West German border and because of Chernobyl, the new Cattenom station has been the subject of continuing protests in recent weeks.

An official at the plant noticed the unusual rise in the water level oo Saturday night when the tem-perature was being raised in a primary circuit on one of the 1300 MW reactors. It was felt that the flood-ing could damage equipment needed in the full running of the reactor which has already been loaded with 118 tonnes of uranium. Cattenom is due to come into serrice on September 15.

Reuter reports from Madrid: Asco 2, Spain's newest nuclear reactor, has been ordered shut after malfunctions in its steam generator system on Friday. The 930MW reac-

thoughts about the outlook for the balance of payments and inflation. The fall in commodity prices will probably go on swamping the ben-efit of currency depreciation till the new year, while the run-down man-ufacturing base will go on needing capital imports. Until the really hor-ificing extract account formers are rifying current account figures are out of the way, interest rates will have to bear the burden of defending the currency. Ironically, the Australian stock market sailed through the bad news for interest rates and consensus forecasts for economic growth well short of the Treasurer's 2.5 per cent.

The fact that the Australian dollar's fall has preceded the seizing up of the economy has left profit margins moderately well-protected; and wage discounting should leave room for a growth in industrial earnings of, say, 10 per cent next

vear. But this is not the sort of thing to excite the likes of Mr Holmes à Court News Corporation has already allowed its Australian operattor, supplied by Westinghouse of the US, is located near Barcelona. **Conrail** to

ing assets to shrink to 20 per cent of **British brewers** the whole. Having judged the strength of the economy correctly for four years, the takeover specialists have now sniffed out every as-set or cash-flow play up to and in-cluding BHP. Current domestic interest rates set very demanding rates of return; but gearing up in eu a very risky game even for the resource companies, whose "natural" bedge in their US-dollar-denominated minerals has proved no hedge at all with commodity prices falling with such a bump in every currency. If there is a corporate opportuni-

cash.

gains when the markets had second

thoughts about the outlook for the

all these deliberations will doubtless provoke much two-way busi-

ness in the brewers - some consolation for stockbrokers who have already suffered the attentions of the Office of Fair Trading's Sir Gordon Borrie. The end of the tie could well lead to yet another heavyweight foreign raid on a beloved British institu

tion. Among the UK competitors, those with the greatest reliance on tied husiness would in theory be the biggest losers. But that is not a recommendation to sell Bass. In a truly competitive environment the winners will be those with the best

A verdict from the commission

unlikely for at least two years. If it went further than its 1969 predeces

sor and recommended a complete

dismantling of the tied system then

doubtless royal commissions and acts of parliament would follow in

its wake. Betting on the outcome of

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might also mean Bass. The losers would appear to be the

clout to fight what would become an production, this would also be a

# **BASF** link

Siemens

looks at

### By David Brown in Frankfurt

SIEMENS, the West German electricals group, may take a significant holding in a new company combin-ing the computer hardware and peripherals business of BASF, the giant chemicals group, and some of its own software operations, it emerged yesterday. BASF said it would spin off its ac-

tivities - with annual sales of DM 600m (about \$300m) last year - into a new company "within the next several months."

It would, however, continue its own production and marketing of down. computer discs and tape cassettes, where it ranks as one of Europe's market lesders with annual sales of some DM 1.2hn.

BASF arknowledged yesterdoy that it was negotiating an arrange-ment under which Siemens may transfer some of its software operations, with sales of some DM 400m, into the new venture. The company would thus have total annual sales of over DM 1hn.

BASF markets an IBM-compatihle computer mainframe produced hy Hitachi - of which it has sold some 400 since 1980 - as well as Hitachi laser printers.

BASF has for several years maintained that these operations, al-though profitable and quickly growing, do not fit into the mainstream of the company's operations.

Express, which had beeo counting Stemens on the other hand would oo the sale of the Denver-based car-rier to United Airlines for \$146m to gain access to IBM-compatible mainframes, placing it second on solve its short-term cash problems. the West German market and improving its competitive position against IBM. regret that this step had to be taken but we were left with no choice. The sale of Frontier to United is contin-

Siemens' current agreement to sell mainframes manufactured by Fujitsu of Japan expires in 1989.

ment securities, similar in style to the US Treasury bond auction, after the transformation of the structure of London's gilts market in October. Britain's central bank is expected to run an experimental series of overall gilt sales. perhaps three or four auctions, probably beginning with shorter dated conventional gilts. So that infied time, are already used for some gilts sales in conjunction with the vestors could be certain what they were bidding for, the Bank of Eng-land would give an assurance that no further stock of the same type

press, the aggressive low-cost

American carrier, deepened yester-

day after it was forced to ground its

Frontier Airlines subsidiary. It

warned that Frontier could be

forced ioto bankruptcy proceedings

if its pilots did not agree to a new wages pact, write Terry Dodsworth

The move underlines the deterio-

rating financial condition of People

People Express said: "We deeply

gent upon agreement between Unit-

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ed and its ucions. To date, United'a

and William Hall in New York.

BY GEORGE GRAHAM IN LONDON

series of auctions of UK govern-

would be issued for a specified peri-27 market makers in the gilt market's new structure. Discussion of the precise form In a tender, unlike an auction, all the auction might take is likely to be delayed until the upbeaval of Big Bang on October 27 has settled successful hidders receive stock at a common price, which may be lower than the price they hid, and not all the stock offered need be allocat-

The auction system of selling gilts, where a known quantity of honds is offered at specified inter-A gilts auction has not been possible in the present structure of the UK market, which is dominated by only three major jobbers, but the vals, is felt to have advantages, particularly in assuring the regularity

funds to Frontier."

borrowing requirements. It is not market structure which comes int bowever, expected to replace the being on October 27 makes the auc present tap system, which is felt to allow considerably more flexibility tion system practicable. Indeed, some participants in the market in managing the gilts market, for particularly the US-based invest more than a small proportion of ment houses, bave viewed a move to auction as essential if the market Tenders, where dealers and in-vestors can submit hids at a speciis to function smoothly with so

many primary dealers. The central bank, however, besides its unwillingness to give up tap system, and greater use is ex-pected to be made of them to ensure fair allocation of stock around the the flexibility of the tap, is known to have been concerned at the expe-rience of some recent US Treasury bond auctions, where the market was squeezed after major Japanese

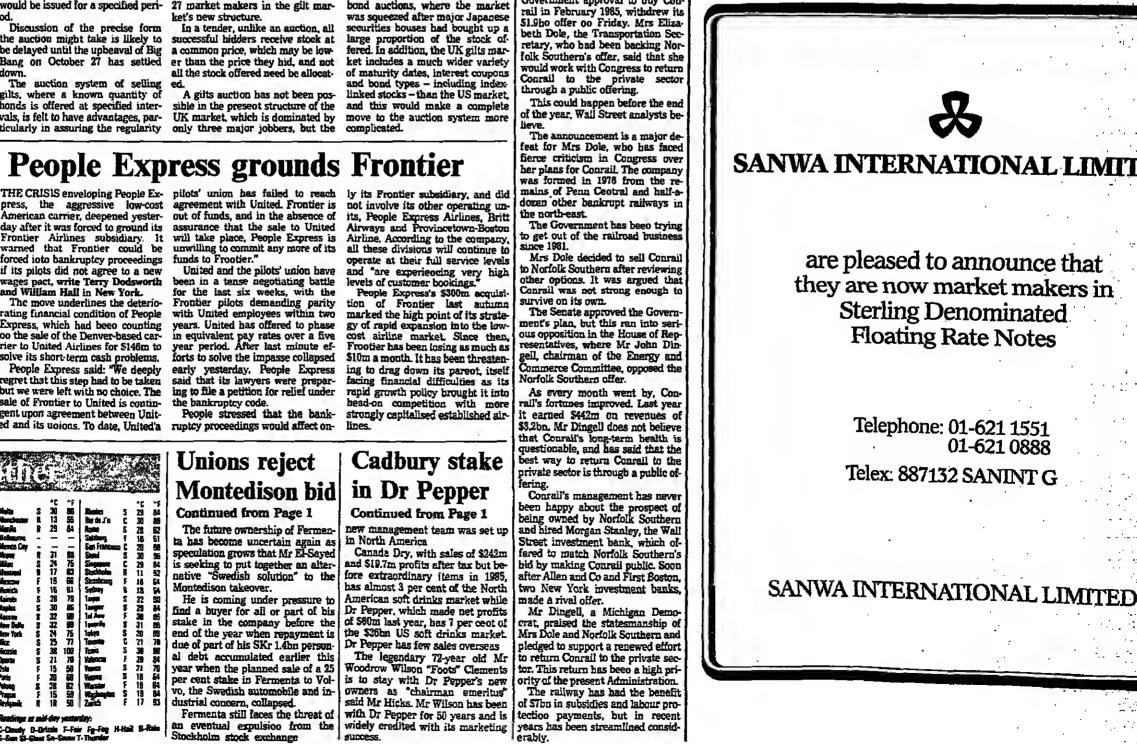
public offer By William Hall in New York THE US Government has acknowl-

be sold by

edged defeat in its bid to sell Con-rail, the state-owned railway, to Norfolk Southern, a rival railway, and cleared the way for one of the biggest stock market offerings in Wall Street's history.

Norfolk Southern, which won US Government approval to buy Con-rail in February 1985, withdrew its

authoritative rather than specula- vantageously demerge, offering the tive at the beginning of July, the production shares on the rating of, breweries sector has underper- say, food manufacturers, while the formed the London All-Share index distribution shares could be sold on by 5 per cent. This understates the a food retailing multiple. As the damage to those shares most close- case of Trafalgar House and Fleet ly identified with the tied-house showed, the parts may add up to trade, since almost half the capitali- more than the whole.



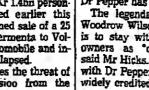
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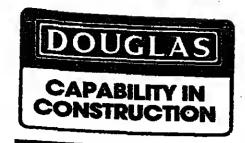
due of part of his SKr 1.4hn personal debt accumulated earlier this year when the planned sale of a 25 per cent stake in Fermenta to Volvo, the Swedish automobile and industrial concern, collapsed

**Continued** from Page 1

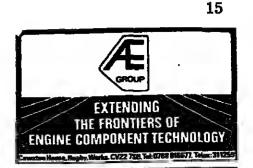
Fermenta still faces the threat of



ta has become uncertain again as speculation grows that Mr El-Sayed Montedison takeover. He is coming under pressure to



# **SECTION II - COMPANIES AND MARKETS FINANCIAL TIMES** Tuesday August 26 1986



# Firestone more than doubles income

<u>N</u>s

### By William Hat In New York

FIRESTONE Tire & Rubber, the second biggest US tyre manufacturer, yesterday reported more than doubled third-quarter net income of \$27m, or 70 cents a share, after including a \$6, or 15 cents a share, after-tax gain from the partial liquid-ation of inventories.

The group's sales fell 3 per cent to \$961m, and sales for the nine months to July 31 fell from \$2,83bn to \$2.69bn. Net income for the nine months totalled \$121m, or \$3.07. compared with \$50m, or \$1.18, last year. The nine-month figures include \$68m, or \$1.67, as a result of the recognition of previously deferred pension reversion gains.

quarter totalled \$64m compared with \$34m. The latest period included a pre-tax gain of \$11m reflecting the partial liquidation of in-ventories. Operating income from the group's international tyre operations rose by 30 per cent to \$26m in the third quarter. Firestone's shares rose by \$% to

\$24% in early trading on Wall Street yesterday.

 DSM, the big Dutch state-owned chemical group, lifted first-half net income by 2.8 per cent to Fl 217m (\$94.2m) from Fl 211m a year earlier, AP-DJ reports from Heerlen.

Lower taxes, a decline in financing costs due to falling interest rates and a drop in outlays required by the company's restructuring pro-gramme mainly were responsible for the slight profit growth.

Soft markets in some of its business sectors as well as lower oil and petrochemical prices helped depress pre-tax operating income by almost 10 per cent to FI 452m in the latest first half from FI 502m.

Turnover declined 18.6 per cent to FI 11.18bn. The company said the negative effects of plunging world energy prices on the valuation of its inventories was an important factor in its drop in pre-tax operating income.

\_\_\_\_ . . . . .

. ...

**Currency sector draws Eurobond investor interest** flurry of new issuing activity last week and syndicate managers should be kept busy over the coming weeks as a crop of deals, some for sovereign credits, are rumoured, writes Clare Pearson in London. But the Eurodollar market seems

unlikely to benefit from this surge in business. Investors' eyes are focused on the "currency" sectors of the market, despite the ambiguity of official statements out of Japan and West Germany on interest rate The US, on the other hand, has

already taken the plunge with a % point cut in the discount rate last Wednesday night. This move surprised but did not impress the Eurobond market.

The cut came earlier than expected so the market did not have time to overrun itself in its anticipation. The hope of a further cut, however, is doing bitle to inspire dealers, giv-en the flatness of the yield curve Operating income in the third which implies longer-term bonds

may not benefit from it. This view is of little help to un-

THE EUROBOND market saw a early last week. Apart from a gen-flurry of new issuing activity last erously priced issue for Long-Term week and syndicate managers Credit Bank of Japan, most of these moved tortoise-like into the market. When a \$100m 10-year issue for Fin-land followed them in the aftermath of the discount rate cut, it met with a resounding chorus of indif-

ference. The difficulty of inspiring Eurobond market investors to purchase dollar bonds is driving more borrowers into the relatively more bu-oyant New York debt market. This alternative bas been favoured by US corporates for some time, but

reigns are increasingly tapping it for longer-term funds. Such stalwart Europond market

issuers as the World Bank, GMAC, Citicorp and Cigna are believed to have made the deliberate decision to issue in New York instead of going to Europe recently. There are rumours that Canada has been considering issuing in the Eurobond market for some time but has probably decided on the Yankee market

derwriters of a rash of new, longer- But the "currency" sectors of the But it also demonstrated that the dated Eurodollar deals launched Eurobond market should see a flock long-term Eurosterling market re-

from Norway is rumoured.

Meanwhile, in the sterling market a £150m bond for Britannia Building Society issued last Friday is expected to herald another crop of floating rate notes for UK building societies, with a very large issue ught likely to surface shortly. The re-opened prospect of lower UK interest rates inspired a recewal of fixed-rate issuing activity in the sterling market last week, although the market came to grief last Thursday after the Bank of England had moved to quell pressure for an immediate cut in bank base lending rates.

Nevertheless, by then Trafalgar House, the UK construction, prop-erty and shipping concern, had been able to reopan the 20-year Eurosterling market, previously closed for the summer.

Trafalgar House's deal traded at discounts to issue price within or around its fees despite a subseent downturn in the gilt market.

of new offerings soon. In the Euroy-en market, for instance, a large deal el was believed to bave been sustained almost entirely by UK institutions, since continental investors continue to resist the prospect of a

long-term sterling bond. European investors are also reluctant to buy longer-dated Canadian dollar paper, dealers say. The 10year area of the Canadian dollar market is oow heftily oversupplied. Some deals are being supported at price levels around their fees, but others were sinking fast by the end

of last week. Longer-term financings are faring better in the D-Mark sector, which is inspired by the hope that the currency may test DM 2 against the dollar and that official interest rates will eventually be cut. Although the domestic bond market is gaining the most from this anticipation, a 30-year Eurobond for the World Bank gained a point last week.

Recent fixed rate D-Mark deals have met mixed receptions, but underwriters should be able to console themselves with the outstanding performance of equity related offer-

ings. Last Friday, for instance, a DM 150m 12-year bond for Kaufhof, the department store group, hit a bid price of 137, 17 points up on the week. Meanwhile Benetton, the Italian clothing company, was able to launch a DM 200m bond at per on Tuesday that was bid at 119 by for a smaller house like Gota which Thursday.

could not for the time being aspire Australian dollar bonds suffered to a role in the primary market, she a fresh burst of selling on Friday amid continuing negative reaction to the recent budget. Issues by Australian borrowers were particularly hard hit in the selling wave.

Peter Montagnon in London adds: Gota (UK), a unit of Sweden's Gotabanken, is to enter secondary market business in Eurobonds. It is hiring a team of three dealers headed by Mr Willy Breitschmid away from Thomson Mckinnon Securities.

A feature of the move is that all three dealers - the other two are Mr Klaus Gerlach and Ms Heather Jackson - have a longstanding association, having worked together at the old firm of Ross & Partners before it was taken over by Drexel Burnham Lambert.

McLeod Young in That makes them seasoned operators. "I would like to have sea. search for soned traders who know what a bear market is in the next couple of years," said Ms Annabelle Svedberg, Gota (UK) managing director. investors Properly staffed secondary market trading was an appropriate activity

By Robert Gibbens in Montreal

McLEOD Young Weir, one of Canada's largest investment banking and brokerage firms, is negotiating with several institutions wanting to buy a substantial interest in the

The Ontario Government is exnected to ease the rules restricting outside ownership in brokerage firms by year-end, and McLeod wants a deal in place by then, said Mr Thomas Kierans, president.

Shearson Lehman Brothers, New York, part of American Express, already owns 10 per cent of McLeod, the maximum under prevailing rules. McLeod is talking to Shearson and two other Canadian institutions, but control will remain with the present senior management. The new outside ownership limit will be 30 per cent

Wood Gundy and Gordon Capital, two large Canadian investment banks, this spring failed to find a basis for merger in advance of com-ing deregulation in the financial services industry while Dominion Securities is raising (US\$72m) from the public. C\$100m

Nesbitt Thomson also went the public issue route while several other brokerages have plans for increased foreign or Canadian institutional ownership.

Teleglobe Canada, the federal Government's next privatisation project, is still subject to policy changes and another round of bid ding is likely.

The Government has competed the sale of De Havilland to Boeing and Canadair to Bombardier and has disposed to an ammunition maker and several smaller crown units. But Teleglobe would be its biggest single privatisation step.

Ottawa originally asked for bids last year, and most proposals had expiry dates last October. Teleglobe handles Canada's foreign telecommunications traffic to all countries except the US and Mexico.

Innovative credit facility launched by British building society

Lloyds also announced last week. BRITISH building societies have been stepping up their borrowing This is a conventional transferable National and Provincial's facility of the year varying between ooe activity in wholesale financial marrevolving credit carrying a margin kets over the last couple of years, of 5 basis points over the London inbut they have not been particularly terbank offered rate for sterling denoted for their innovation. Last posits and a commitment fee of 6 week, however, National and Probasis points payable only if less vincial of Bradford launched a credthan two-thirds of the deal is it facility with a difference in the drawn. sterling market, writes Peter Mon-tagnon in London. The margin is lower than on simi-

Led by Lloyds Merchant Bank but the borrower will absorb lenders' costs of maintaining reserve the deal is a Cloom, five-year advances facility which carries no unassets with the Bank of England. derwriting back-up and in which participants have an obligation to bid each time the borrower seeks to advances facility, which is reminis-cent of a dollar facility arranged fordraw. The catch is that there is no ceiling to the level at which they can bid for paper.

The deal is being handled separ-ately from another C100m, five-year facility for the same borrower that proved highly controversial.

mmitment fee.

Lloyds described the structure on lar deals for other building societies Friday as a half-way house between a committed facility and an uncomteed availability of funds because each participant is committed to bid This deal is designed to be heavifor paper. But it cannot rely on obly drawn and will not back up the be vulnerable to higb rates if mar- ture.

ket perception of its credit reting BAT Industries in the early days of the Europote market. That operachanged.

To combat this a further twist has been introduced which Lloyds describes as a Christmas bonus, pany. The deal carries a facility fee

It remains to be seen whether Banks will receive a fee at the end of 10 basis points, and drawings will National and Provincial's facility of the year varying between one bear interest at a margin of 12% bawill arouse the same degree of de- and three basis points depending bate, but one major change that has on the averaged weighted level of occurred between the two deals is their bids for the paper. The highest that the market has become accus- fee will be paid if the average bid tomed to fully uncommitted issues margin is less than 6 basis points, of commercial paper which carry no the lowest if it is between 9 and 12 and there will be no fee at all if it is higher than 12.

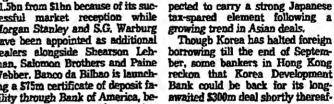
For the advances facility banks will have to absorb reserve asset mitted one. The borrower is guaran- costs themselves but Lloyds still reckons that the return to banks sbould be slightly higher when the bonus is taken into account than taining a particular price and would under a conventional facility struc-

Among other new deals Salomon Brothers is arranging a \$100m, fiveyear facility for Norwest Corporation, the Minnespolis holding com-

for a Spanish bank, Bankers Trust will also be a dealer. sis points though there will be an additional utilisation fee of 10 basis That leaves Asia as the main focus of activity in Eurocredits. As alpoints if more than half is taken. ready reported, terms on Malaysia's

\$350m deal were unveiled last week Separately, Lloyds announced on while Pakistan has agreed a 1 per cent margin on its five-year, \$100m credit led by Arab Banking, Chase Friday that its bankers acceptance facility for the Soviet Foreign Trade Bank had been increased to £150m Manhattan, Chemical and Gulf Infrom £100 m. ternational Bank.

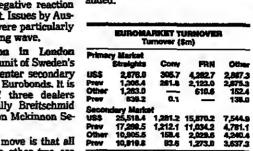
The certificate of deposit pro-Bidding is now hotting up on the ramme for Mitsui Trust and Bank- \$500m credit for India's Oil and Natural Gas Commission which is exing has also been increased to \$1.5bn from \$1bn because of its successful market reception while Morgan Stanley and S.G. Warburg have been appointed as additional dealers alongside Shearson Leh-man, Salomon Brothers and Paine Webber, Banco da Bilbao is launching a \$75m certificate of deposit facility through Bank of America, believed to be the first such operation





All these securities having been sold, this announcement appears as a matter of record only.

August, 1986



Eurociae

45,558.7 29,857.9

9,979.4

15,007.7 11,005.5 9,400.5 7,913.4

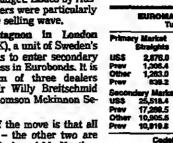
Total

60,586.4 40,862.4

19,379.9 16,901.6

Source: AIBD

USS Prev Other Prev Week to August 21 1985





All these Notes having been sold, this announcement appears as a matter of record only.

### The Nippon Credit Bank (Curaçao) Finance, N.V.

### U.S.\$100,000,000

### 8 per cent. Guaranteed Notes 1993

unconditionally and irrevocably guaranteed, as to payment of principal and interest, by

> The Nippon Credit Bank, Ltd. (Kabushiki Kaisha Nippon Saiken Shinyo Ginko)

Nippon Credit International Limited Morgan Guaranty Ltd

**Bankers Trust International Limited** Banque Indosuez **Chase Investment Bank County NatWest Capital Markets** Daiwa Europe Limited Dresdner Bank Aktiengesellschaft Generale Bank Kidder, Peabody International Limited Lloyds Merchant Bank Limited **Merrill Lynch Capital Markets Orion Royal Bank Limited** Swiss Bank Corporation International S. G. Warburg Securities Wood Gundy Inc.

Salomon Brothers International Limited **Morgan Stanley International** 

Banque Française du Commerce Extérieur **Banque Paribas Capital Markets Limited Citicorp Investment Bank Limited Credit Suisse First Boston Limited Deutsche Bank Capital Markets Limited EBC Amro Bank Limited** Goldman Sachs International Corp. **Kleinwort Benson Limited Manufacturers Hanover Limited** Samuel Montagu & Co, Limited **Shearson Lehman Brothers International Union Bank of Switzerland (Securities)** Limite Westdeutsche Landesbank Girozentrale Yamaichi International (Europe) Limited



### **INTERNATIONAL BANK FOR RECONSTRUCTION** AND DEVELOPMENT

Japanese Yen 50,000,000,000 5¾% Yen Bonds due August 7, 1996 (Tenth Issue) **ISSUE PRICE 1001/2%** 

The Nikko Securities Co., Ltd.

| <b>Bank of Tokyo International Limited</b>   |
|--|
| Baring Brothers & Co., Limited               |
| <b>Credit Suisse First Boston Limited</b>    |
| <b>Deutsche Bank Capital Markets Limited</b> |
| <b>IBJ International Limited</b>             |
| Mitsubishi Trust International Limited       |
| Nomura International Limited                 |
| Swiss Bank Corporation International Limited |
| S. G. Warburg Securities                     |
| Yasuda Trust Europe Limited                  |
|  |

a Capital Markets Group Arab Banking Corporation (ABC) ank für Gen Sank of Yokohams (Europe) S.A. **Bayerische Hypothek** Bank AG nationale à Luxemb James Capel & Co. Bergen B curifies (Europe Credit Lye ak Intern . L thi Europe Credito I anital Mana Credit da Nord ske Bank AF 1871 Akties EBC Amro Bani skeb ing & Co. cific Capital S.A. traie und Bank der öst Hill Sam off International Bank B.S.C. mel & Co. idder, Peabody Securities Kleit Kokusai Europ sbank N.V. Kawail Foreign Trading Contrac nt Co. (S.A.K.) ov (S.A.K.) yows Bank Nederland N.V. Lioy ds Merchant Benk arities Europe forgan Generanty Lid Nippon Kangyo Kakum n Rovel Rank eidring & Pierson N.V. N.M. Rothschild & Sons ry Schroder Wagg & Co. Lehman Broth Trust Intern al Lid. e) S.A. Tokai International Tokyo Securities Co. (Eu **Toyo Trust Interna** Wake International (Ecrope) eutsche Lande Girozentrale ne Securities (Europe) Ltd.

# **INTERNATIONAL CAPITAL MARKETS**

### **US MONEY AND CREDIT**

# Wall St. caught napping in week of surprises

0.37 6.91 9.89 6.33 8.25 8.20

Vield

6,58 7.86 7.25 8.38 9.13 8.55

art 11 M1 rose by S5bn to \$684.95m. Bource: Selomos Gros (esdmatos).

High

9.91 7.40 7.48 8.10 6.05 6.00

7.01 7.02 7.29 8.25 9.12 6.87

1 wiek 4 wks ago ago

9.14 5.38 5.41 5.88 6.05 6.90

Last 1 week 4 wks Friday ago ago

6.31 5.53 6.00 6.10 5.85

+ 05 + 05 N/A N/A

Last Change Friday on week

US MONEY MARKET RATES (%)

US BOND PRICES AND YIELDS (%)

CDs

ial Paper

Money Supply: In the week ended Aug

Three-month prim

Cot

Savon-year Treasury 20-year Treasury 30-year Treasury New 10-year "A" Financial New "AA" Long utility New "AA" Long industrial

50-dey

6.14 5.36 5.43 5.70 6.65 5.60

102 1174 995 N/A N/A N/A

A COUPLE of surprises were sprang on the US credit markets last week, both of them providing some welcome elements of certainty after o period of drift and confusion. First came the unexpected Fed Funds (weekly sverage) Three-month Treasury bills Six-month Treasury bills downward revision of the second quarter gross national product (GNP) figures to s minimal 0.6 per cent, an outcome which contrasted sharply with the expectation of little change in the initial growth estimate of 1.1 per cent, Second, and more dramatic. was the immediate response of the Federal Reserve with a cut of half a percentage point in the discount rate to 5.5 per

wall Street was caught recent only six weeks ago, the napping by the discount rate move because it had been sure that the economy was not arguing that the Fed would want to make quite sure that the economy was not arguing that the Fed would want to make quite sure that the economy was not to considerable pressure from the for the economy was going. The halimark of the decisive steps in Washington interest rates moving forward to was tax reform, which, --indeed, the announcement was going weakness in the US strating to some analysts, may was immediately welcomed by srowth, real net exports, showed to the some analysts, may was immediately welcomed by srowth, real net exports, showed to the some analysts. Vo ne ma ma pre of

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In the event, the governors voted unanimously for the cut-and with a decisiveness which, says Mr Allen Sinai, chief economist at Shearson Lehman, amounts to a new strategy. The US central bank, he ergues in his weakly bulletin, is now show-ing its willingness to go it alone in trying to revive the economy without the assur-ance of co-ordinated interance of coordinated inter-national action. It is accepting the risk of using reductions in the dollar's exchange rate flowing from lower rates to improve America's competitive position and put pressure on the US's trading partners to expand their expanding

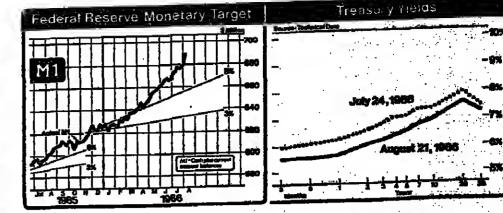
tees and a bias of opinion see both opportunities and towards easier mooetary condi-tions. sive interest rate cuts.

Early in the week, long-term rates had edged down, propelled by renewed indications of a weakening economy — indeed, some market participants argued that the yield on the 30-year Treasury long bond might be deading for the 7.10 range last seen in mid-July. On Mooday and Tuesday, corporate

Mooday and Tuesday, corporate treasurers jumped et this chance to refinance at lower long-term rates, bringing about the market in just two days. By the end of the week, every-thing looked different again. Yields at the loog end of the interest rate spectrum headed back np as the market chewed over the infetionary risks of edditional large declines in the

FT/AIBD INTERNATIONAL BOND SERVICE

| alimatiship of Mr Paul towards tax reform, which,indeed, the announcement conduct and the key to stronge<br>olcker has been its unwilling- according to some analysis, may was immediately welcomed by growth, real net exports, showe   |   |
|--|---|
| <ul> <li>atrianiship of Mr Paul, towards tar reform, which, mindeed, the announcement is continued on the construction industry, beined on the construction industry. Cartain sectors in the construction industry with demers in the construction industry. Cartain sectors is previous discount rate reduction industry wars, stand to lose quite shall be accommended that after three transmine is setting. The shall be accommended that after three transmine is setting. The shall be accommended that after three transmine is setting. The shall be accommended that after three transmine is setting. The shall be accommended that after three transmine is setting. The shall be accommended that after three transmine is setting. The shall be accommended that after three transmine is the setting. The shall be accommended that after three transmine is the tax code and the setting. The shall be accommended that after three transmine is three transmine is the setting. The shall be accommended that after three transmine is the tax code and the setting. The shall be accommended that after three transmine is three transmine is candidate the transmine is the water.</li> <li>K GILTS</li> <li>K GILTS</li> <li>K GILTS</li> <li>Composibility which the shall be accommended to be accommend to be accomm</li></ul> | D       UB DOLLAR       Che of<br>STRAIGHT       Learned Price week Vieto<br>Alton Australia Price Week Vieto<br>Barten Straig       Queensland Gwt 11% BD 100       111% +00       7.27       Bast Double IF, 60       115 |
| imany offerings." The Bank<br>id last April.<br>While defailed discussions<br>pear likely to be left until<br>primary dealers have<br>covered fully into the new<br>att is clear that an auction<br>primary dealers have<br>covered fully into the new<br>att is that the tap äystem will not<br>have to conomist at Merrill Lynch,<br>a e authorities are planning an<br>All of these Securities have been sold. This announcement appears as a mother of record only.<br>All of these Securities have been sold. This announcement appears as a mother of record only.   | 5] Genmark 12% 52       250       251   |
| U.S. \$100,000,000<br>Australian Industry Development Corporation<br>83% Bonds Due 1996  | Gen Else Cred 11, 97  |
| BANQUE NATIONALE DE PARIS COMMERZBANK COUNTY NATWEST CAPITAL MARKETS   | Long Jern Cred 12 53 100       121, 4-09, 7,83       Matrine Midland 's 00, 125, 4-09, 7,83       Straine Midland 's 00, 100, 7,7       Straine Midland 's 00, 100, 100, 100, 100, 100, 100, 100,   |
|  | Ortrario Hydro 114 50   |



16

# **INTERNATIONAL CAPITAL MARKETS AND COMPANIES**

# Laura Raun on the strategy behind a rare Dutch takeover attempt Unilever smells success in Naarden move

**Interim** profits

setback

WHILE dramatic and costly takeovers of British and meeting on August 12 in the scale derived from merging accelerated in recent years, far south-east of Amsterdam. Para-fewer Dutch companies have wealthy village of Naarden, Naarden, Naarden, With Unilever's outh-east of Amsterdam. Para-fewer Dutch companies have doxically, the meeting was held to consider anti-takeover makes Unilever's friendly and companies, has fended off un-makes Unilever's friendly and fragrances group, even more interesting. Unilever, the Anglo-Dutch favours and fragrances group, even and fragrances use shark repellent" measures were to go abcad in approved anyway because they will be invoked only if the plated public bid for the real. WHILE dramatic and takeovers of British American companies

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1.212

10.00

and fragrances group, even more interesting. Unilever, the Anglo-Dutch food and detergents conglomer-ate, looks set to go abcad in coming weeks with its contem-plated public bid for the rest of Naarden that it does not already own. Negoliations over the mooted F1 90 a share offer have continued even while Unilever talks fail or if an un-friendly, competing bid is made. Unilever itself with its L45m shares purchased on August 18, cast the decldirs; votes. as perhapa explaining in part why Naarden's shares. Yesterday Unilever said it had boosted its stake from 40 per cent to sofng well. Under Dutch law, Unilever ia not permitted to acquire more than 50 per cent of Naarden shares on the open market. Naarden executives and shareholders heartily welcomed tunilever's advances during of a surprise amid the belief that a US acquisition was still top priority. But both com-

shareholders heartily welcomed still top priority. But both com-Unilever's advances during an panles apparently expect to

tion, somewhat similar to Grundig of West Germany. Douwe Egberts, the coffee add tobacco company, issued B shares some years ago in an attempt to preserve some family

point in negotiations with Unl-lever. As a Naarden executive emphatically put it: "We're not interested in asset-strippers like some of the American com-panies."

rather than taking Instructions from a headquartera elsewhere. Part of this independence arises from the Dutch character and its very bigh premium on in-dividual freedom. Family - owned companies often have carefully protected their integrity, avoiding going public entirely or ensuring firm control. The Hein family re-Many Dutch companies already boast large operations ahroad and export heavily. obviating the need to merge control. The Heijn family re-tains some control over Ahold,

the food-chain concern, through preference shares in a foundaintersection of the section of the s

and workers' councils over the possible acquisition. Neither the unions nor the councils can legally block a takeover, al-though Naarden employees al-ready bave expressed fears of losing some jobs. One Naarden executive points out that strained labour rela-tions are a poor way to start a new venture and so all sides want an acceptable solution. No iob guarantees have been made

abroad and import many raw abroad and import many raw materials just to survive.
L Yet another factor is the graat weight which Dutch anounced its plans, a companies that make union members fear for their jobs. Management's decimation of companies that make the port of companies that make union members fear for their jobs. Management's decimation of companies that make the port of companies th be rejected either. Naarden

GROUP FIVE, one of South Africa's The first half's turnover dropped R2m and the pre-tax loss was larger construction companies, suf-fered a 20 per cent decline in turn-over during the first half of the year before finance charges and tax was tions have, or are being sold and

hannesburg. The company continued to suffer against last year's R1.2m interim neering sectors. operating losses and bas closed loss. In 1985 as a whole, turnover the first balf has resulted in a down several loss-making divisions. Was R498m, the operating loss was loss of 71.8 cents a share

**Group Five turnover falls 20%** 

as the number of contracts avail-able sbrank, writes Jim Jones in Jo-terim pre-tax loss map Bits

| Borrowards                                     | Amount        | Maturity              | Av. life<br>years | Coupon<br>% | Price  | Book Runner                          | Otter yield  |
|--|---------------|-----------------------|-------------------|-------------|--------|--------------------------------------|--------------|
|  |               | to be the state       | years             |             |        |                                      |              |
| I.S. DOLLARS                                   | 58            | 1991                  | 5                 | 2%          | 100    | Weke lat, (Europe)                   | 2.875        |
| Nako Securities ¶‡<br>Bank of Takyo (2) ‡      | 108           | 1993                  | 7                 | 7%          | 180%   | Societe Generale                     | 7.507        |
| De Nat. Investeringsbik 1                      | 100           | 1996                  | 10                | 744         | 1011/a | Bangue Paribas                       | 7.585        |
| ADB 1  | 208           | 1996                  | 10                | 7%          | 1001/2 | Deutsche Bk Cap. Mitts               | 7.552        |
| TCB of Japan 1                                 | 150           | 1599                  | 18                | 8           | 1011/2 | LTCB Int.                            | 7.779        |
| Beer Staterns Cos. (bt 11                      | 200           | 1994                  | a                 | 3/16        | 100    | Bankers Trust Int.                   | -            |
| Agro Back 11                                   | 100           | 1996                  | 10                | 31/2        | 100    | EBC Arero Bank                       | 3.500        |
| Credit Chimique †1                             | 50            | 1996                  | 10                | (d)         | 100    | Morgan Stanley                       |              |
| American Express 1                             | 100           | 1903                  | 7                 | 75/2        | 16034  | Shearson Lahman Bros.                | 7.483        |
| American Express (a) 1                         | 108           | 1993                  | 7                 | 7%          | 100%   | Skearson Leimun Bros.                | 7.507        |
| Nortd Bank (e) 1                               | 250           | 28t5                  | 30                | 844         | 89     | Morgan Stanley                       | 8.515        |
| Shaarson Lekman (g) †1                         | 300           | 1999                  | 18                | 10bp        | 100    | Shearson Lehman Bros.                | -            |
| Fujita Corp. 9                                 | 70            | 1901                  | 5                 | (3%)        | 100    | Nomura Int.                          |              |
| smake Motor T                                  | 180           | 1991                  | 5                 | [31/e]      | 100    | Nomura Int.                          |              |
| Isies Corp. 1                                  | 50            | 1991                  | 5                 | 131/=1      | 100    | Yamaichi Int. (Eur)                  |              |
| Sakai Chemical                                 | 35            | 1991                  | 5                 | [3Vc]       | 188    | Nikko Secs. [Europo]                 | 7.425        |
| Rinland 1                                      | 160           | 1998                  | 10                | 7%          | 1013/  | Citicorp                             | 7,923        |
| lessische Landesbank †‡                        | 100           | 1900                  | 10                | Ø           | t00    | LTCB int.                            |              |
| G. P. Corp. ¶                                  | 50            | 1991                  | 5                 | (27)        | 103    | Baiwa Europe                         |              |
| D. P. Corp. 1                                  | 20            | 1001                  | 5                 | (27/2)      | 100    | Nikko Secs. (Europe)                 |              |
| CANADIAN OCILARS                               |               | 1005                  |                   | 934         | 101%   | Blat and Young Wair                  | 9.17         |
| Canadian Net, Railway ‡                        | 100           | 1995                  | 18<br>31/2        | 8%          | t00?/  | McLood Young Weir<br>Morgan Guaranty | 8.9t4        |
| Philip Morris 1                                | 100           | 1 <b>99</b> 6<br>1056 | 372               | 10          | 101%   | CIBC Ltd.                            | 0.699        |
| Trizes Corp. 1                                 | 75            | 1058                  | 18                | 10          | 101-4  |                                      | 0.000        |
| D-MARKS  |               |                       |                   | 63/4        | 118    | BHF-BANK                             | 4.411        |
| BHF-Bank Finance 11                            | 150           | 199B                  | 12                | 0%          | 18034  | WastLB                               | 8.82         |
| Hart. Blk of Hungary ‡                         | 150           | 1990                  | 10<br>7           | 2           | 188    | CSFB-Effectentiank                   | 2.00         |
| Benetton Int. 91                               | 200           | 1993<br>1000          | 10                | 01/4        | 100    | Deutsche Bank                        | 0.25         |
| Heranus Int. ‡                                 | /5            | 1000                  | 10                | 0.44        | 100    | DUDISCHE DOIN                        |              |
| SWISS FRANCS                                   | 50            | 2006                  | _                 | 61/2        | 100    | Sodicic                              | 6.58         |
| ETE Finance [h] #1                             | 00            | 1001                  | -                 | 3/4         | 100    | Banca del Gottardo                   | 0.75         |
| Hippon Thempson                                | 150 min.      | 1993                  | _                 | 15)         | (100)  | Soditic                              |              |
| Chase Corp. Fin. 1                             | 83            | 1991                  |                   | (1)         | 11001  | Credit Suisse                        |              |
| Senius Electric "                              | 200           | 1001                  | _                 | 14741       |        | Credit Suisse                        |              |
| Tokyo Bectric Pwr                              | 190           | 1981                  |                   | 111         | 100    | Credit Suisse                        |              |
| Fujita Corp. 1                                 | 100           | 2806                  |                   | 51/2        | 393/4  | SBC                                  | 5.14         |
| M polis of Tokyo ‡<br>ECSC * ‡<br>Rohm Co. * § | 41.2          | 1991                  |                   | 44          | 100    | SBC                                  | 4.75         |
|  | 100           | 1001                  | _                 | 111         |        | UBS                                  |              |
| Rohm Co. ** §<br>Rohm Co. ** ¶                 | 100           | 1993                  |                   | (1%)        | •      | UBS                                  |              |
| A/a Nevi ** ‡                                  | 50            | 1991                  |                   | 47/2        | 109    | Credit Suisse                        | 4.87         |
| A/s nen I                                      | 50 max.       | 1995                  | -                 | 5%          | 100    | Bge Gutzwiller, K. B.                | 5.75         |
| Pegasus Gold Corp. (k) §                       |               | 1994                  |                   |             |        |                                      |              |
| STERLING                                       | 100           | 2006                  | 20                | 18%         | 108%   | Kleinwort Benson                     | 18.59        |
| Trafalgar House ‡                              | 58            | 1591                  | 5                 | 31/2        | 1003/4 | BZW                                  | 0.30         |
| Dressbaer Bank ‡<br>Britannin B. Soc. (g] †‡   | 150           | 1096                  | 10                | 16bp        | 104    | Hambros Bank                         |              |
| FRENCH FRANCS                                  |               |                       |                   | <u> </u>    |        |                                      |              |
| Statul (f) †1                                  | 750           | 1993                  | 7                 | 1/16        | 189,1  | BNP                                  |              |
| GROEBS   |               |                       |                   | -           |        |                                      |              |
| ABN ** 1                                       | 100           | 1991                  | 5                 | 53/4        | 199    | ABN                                  | 5.75         |
| ICN P macauticals §                            | 50            | 1994                  | Õ                 | 0           | 190    | Van Heften and Co.                   | 0.00         |
| DANISH KRONER                                  |               | -                     |                   |             |        |                                      |              |
| Demnark ‡                                      | 508           | 1901                  | 5                 | 93/4        | 181    | Privatbanken                         | <b>9.4</b> 9 |
| YEN  |               |                       |                   |             |        |                                      |              |
| Kewasaki Steel (c) 11                          | 1 <i>0</i> 6m | 1955                  | tØ                | (cl         | 108    | Normara Int.                         |              |
| Sweden 1                                       | 2860          | 1905                  | 9                 | 5%          | 1011/2 | Daiwa Europe                         | 5.41         |

nad S withdrawn recapitalisation plan.

| . Corp. ¶<br>. Corp. ¶ | 50       | 1991 | 5    | (242)    | 103          | Nikko Secs. (Europe)         | •      |
|------------------------|----------|------|------|----------|--------------|------------------------------|--------|
| ADIAN OCILARS          |          |      |      |          | 101%         | BR. I and Marine Marin       | 9,179  |
| dian Net, Railway ‡    | 100      | 1995 | 18   | 93/4     |              | McLood Young Wair            | 8.9t4  |
| Morris 1               | 100      | 1996 | 31/2 | 0%<br>10 | tQ0%<br>101% | Morgas Guaranty<br>CIBC Ltd. | 0.699  |
| s Corp. ‡              | 75       | 1056 | 18   | 10       | 10148        |                              |        |
| ARKS                   |          |      |      |          |              |                              | 4.411  |
| Bank Finance 11        | 150      | 199B | 12   | 63/2     | 118          | BHF-BANK                     | 8.822  |
| Bk of Hungary 1        | 150      | 1990 | 10   | 0%       | 10034        | WestLB                       | 2.000  |
| ttos Int. 91           | 200      | 1993 | 7    | 2        | 188          | CSFB-Effectenbank            | 0.250  |
| nus int. ‡             | 75       | 1000 | 10   | 01/4     | 100          | Doutsche Bank                | 0.230  |
| SS FRANCS              |          | 100  |      |          |              |                              |        |
| Finance [b] \$1        | 50       | 2006 | -    | 61/2     | 190          | Sodicic                      | 6.590  |
| an Thempson ** *       | 00       | 1001 | -    | 3/4      | 100          | Banca del Gottarda           | 0.750  |
| a Corp. Fin. 9         | 150 min. | 1993 | -    | 15)      | (1001        | Soditic                      |        |
| an Electric ** 1       | 83       | 1991 | -    | (1)      |              | Credit Suisse                |        |
| o Electric Pwr **      | 200      | 1001 | -    | 147n1    |              | Credit Suisse                |        |
| a Cerp. ** 1           | 100      | 1981 | -    | 111      | 100          | Credit Suisse                |        |
| tes of Takya 1         | 100      | 2806 | -    | 51/8     | 997/4        | SBC                          | 5.145  |
| t ***                  | 41.2     | 1991 | -    | 43/4     | 100          | SBC                          | 4.758  |
| a Co. ** §             | 100      | 1001 | -    | 111      | •            | UBS                          |        |
| n Co. ** ¶             | 100      | 1993 | -    | (1%)     | •            | UBS                          |        |
| Nevi * 1               | 50       | 1991 | -    | 4%s      | 100          | Credit Suisse                | 4.875  |
| usus Gold Corp. (k) 5  | 50 max.  | 1995 | -    | 5%       | 100          | Bge Gutzwiller, K. B.        | 5,758  |
| SUNG                   |          |      |      |          | _            |                              |        |
| aloar House 1          | 100      | 2006 | 20   | 10%      | 100%         | Mainwort Benson              | 10.594 |
| doer Bark 1            | 58       | 1591 | 5    | 31/2     | 1003/4       | BZW                          | 0.306  |
| main B. Soc. (g] †‡    | 150      | 1096 | 10   | 10bp     | 104          | Hambros Bank                 |        |
| ICH FRANCS             |          | _    |      |          |              |                              |        |
| ai (f) t‡              | 750      | 1993 | 7    | 416      | 100,1        | BMP                          |        |
| TIFBS                  |          |      |      |          |              |                              |        |
| ** 1                   | 100      | 1991 | 5    | 53/4     | 199          | ABN                          | 5.750  |
| P macauticals §        | 50       | 1994 | Ō    | 0        | 190          | Van Heften and Co.           | 0.000  |
| ISH KRONER             |          |      |      |          |              |                              |        |
| nark 1                 | 508      | 1901 | 5    | 92/4     | 101          | Privatbanken                 | 5.498  |
|                        |          | _    | _    |          |              |                              |        |
| asali Steel (c) t1     | 1860     | 1955 | tØ   | (c)      | 108          | Normers Int.                 | -      |
|                        | 2950     | 1905 | 9    | 56/1     | 1011/2       | Daiwa Europe                 | 5.418  |
| den 1                  | 2860     | 1905 | 9    | 278      | 10172        | Danwa curphs                 | 0.410  |

### Elkem slides further into the red at six months

### BY FAY GJESTER IN OSLO

mining and manufacturing inventory build-up during the concern, reports a further first half. Elkem's finished concern, reports a further deterio...tion of results in the second quarter of 1986, bringing graup losses for the half. Elkem's finished products division and the mineral company, Norsk wineral company, Norsk Nefelin, achieved satisfactory results in the period. The Norwegian market was ordinary items, of NKr 258m a year earlier. Turnover dropped to NKr 3.7bn, from NKr 4.74bn, reflecting continuing low prices for the group's main products for the group's main products

dispute In April.

The 12 per cent devaluation vestigating unusual movements of the Norwegian krone in May in the price of Kwaerner's shares had an immediate negative just ahead of the purchase. Impact on Elkem's accounts, by Mr Erik Jarve, stock exchange impact on Elkem's accounts, by boosting financial costs. However, it also increases shares rose steeply before the kroner income from exports, deal and fell back sharply the ond over the year as a whole next day. this is expected to offset the initial rise in financial costs. The report says that there were actively traded. A total of are still no signs of a likely 41,700 changed bands at a clos-concret price improvement for 'arrus 120 art NN 10 3211 321

at Beijer ELKEM, the Norweglan metals, market aituation, there was no

-aluminium, silicon and ferro it paid for the 27 per cent stake alloys-coupled with the effects in Norway's Kvaerner group, of a week-long industrial which it bought early last week dispute la Arril The stock exchange is also in-

coneral price improvement for 'artis rad OSI TMN to abud Sur the metals it produces, but This is NKr 8 per share less notes that, despite the difficult than Elkem reportedly paid.

# Fruehauf agrees \$1.12bn Merrill Lynch-led buyout

BY PAUL TAYLOR IN NEW YORK

INVESTMENT BELJER, the Swedish diversified bolding company, said pre-tax profits fell 20 per cent to SKr 197m (\$28.6m) in the first half of 1986 from SKr 247m a year earlier, APDJ reports from Stockhulm.

Street securities firm, and Fruehaufa senior managers. As a part of the deal, which came after two days of intense group led by Mr Asher B. Edel-man, dropped its hostile counter bid but will emerge from the battle with a large profit. As part of the deal the Merrill Lynch-led group agreed to accumulated by the Edelman group for \$49 a share, repre-senting a profit of about \$30m, and to reimburse \$21m In Edel-man expenses. Despite a 38.4 per cent in-crease in the general stock market index, its portfolio of listed shares only increased 19.6 per cent during the period because of a steep drop in the share price of Fermenta, the biotechnology company. The market value of Beijer's portfolio rose to SKr 3.32bn at the end of June from SKr 2.82bn at the beginning of the year. For the full year, Beijer foreman expenses.

cast that pre-tax profits would fall to SKr 250m from SKr 435m in 1985. The forecast was adjusted upwards from expectations of a SKr 180m full-year profit stated in May. Belier group sales increased 29 per cent in the first balf to SKr 710m from SKr 551m in the year-earlier period. Earlier Merrill Lynch had

AUGUST 1986

# THE five-month long battle for been offering \$48.50 in cash and THE five-month long battle for been offering \$48.50 in cash and control of Fruebauf, the US securities for Fruehauf while automotive parts and truck the Edelman group had company, coded with the Detroit appeared close to winning the group agreeing to a sweetened bid battle with a complex \$1.12bn leveraged buy-out bid led by Merrill Lynch, the Wall cent of the stock and proposed Street securities firm, and acquiring the rest of the com-

nan expenses. The Merrill Lynch-led group banks, is commencing a teoder will pay shareholders \$49,50 a offer to buy up to 8m of its share in cash for 71 per cent of outstanding common shares at Fruehauf and acquire the \$60 each in cash, for a total of remaining shares with a package \$480m. This represents a \$34m of securities, including pre-increase over the cash distribuof securities, including pre- increase over the cash distribu-ferred and common stock, which tion to public stockholders analysts valued at about \$48.75 involved in the company's now

This announcement appears as a matter of record only.

### U.S. \$55,000,000

This announcement appears us a matter of record only.



# Great American Credit Services, Inc.

**Revolving Credit Facility** 

Guaranteed by

### **Great American First Savings Bank**

Arrange **Credit Suisse First Boston Limited** 

Participants

Banco de Bilbao S.A.

Bank Brussel Lambert N.V.

**Banque Paribas** 

**Crédit Agricole** 

First Interstate Capital Markets Limited

National Australia Bank

Fucility Agent **Credit Suisse First Boston Limited**  The Bank of Tokyo, Ltd.

**Banque Nationale de Paris** 

Crédit du Nord

Kansallis Banking Group

The Sanwa Bank, Ltd.

U.S. \$100,000,000



7% per cent. Notes due 1996

Issue Price 993/4 per cent.

### Union Bank of Switzerland (Securities) Limited

Bank of Tokyo International Limited **Barclays Merchant Bank Limited** Crédit Commercial de France **Daiwa Europe Limited Generale Bank** Kleinwort, Benson Limited Kuwait International Investment Co. s.a.k. Morgan Grenfell & Co. Limited The National Commercial Bank-Jeddah

**Banca del Gottardo** Leu Securities Limited

**Banque Bruxelles Lambert S.A. Chemical Bank International Limited** Crédit Lyonnais **Deutsche Bank Capital Markets Limited IBJ** International Limited **Kredietbank International Group** Kuwait Investment Company (S.A.K.) **Morgan Guaranty Ltd** The Nikko Securities Co., (Europe) Ltd. Genossenschaftliche Zentralbank AG-Vienna Swiss Volksbank

18

# **UK COMPANY NEWS**

### Financial Times Tuesday August 26 1986

# Yorkshire-TV should make a good debut

### BY RICHARD TOMXINS

Yorkshire Television, market quotation, today pub- the forecast dividend of 6.25p, lishes the prospectus for an the yield will be 7.04 per cent. offer for sale which will value it at £41.2m.

Some 8.2m shares - 25 per some d.2m shares — 25 per cent of the equity — are heing sold at 125p a share by the company's four major share-holders. These are Bass, W. H. Smith, PL Publishing (a subsidiary of Pearson, which also owns the Finaoccal Times) and Yorkshire Post News-

papers, Baring Brothers, the merchant bank, is sponsoring the issue and Cazenove is the

hroker. Yorkshire is comiog to the market on a profits forecast of £8.25m for the year to September 30 1936, compared with

Network Security

Network Security Corpora-tion, tha 26.5 per cent owned associate of Automated Security (Holdings), has announced in-

terim profits more than doubled at \$4.7 m (£3.1m) against \$2.2m on turnover of \$30.3m, The directors said that the

company performed soundly. The period iocluded the public

issue of shares in its subsidiary Interactive Technolo-gies and the issue of \$20m of

convertible loan stock to re-

place existing debt.

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profit doubled

Yorkshire Television, the £3.6m last time, putting the count to the everage for last of the major television shares on a prospective price/ Thames, Central and LWT. contractors to seek a stock earnings multipla of 8.4. On Nervousness over the state of Nervousness over the state of the new issues market seems to have encouraged the sponsore The prospectus also high- to err on the generous side, lights Yorkshire's programme- and although there is always making record and draws the danger that holiday-making attention to praise from investors will have left their the Independent Broadcasting cheque books at home, the cheque books at home, the heavy oversubscriptions for Thames and TV-am suggests Authority for programmes such as First Tuesday, From The Cradle To The Grave, Harry's that there is enough pent-up demand for cheap television Game, and The Beiderbecke stocks to see Yorkshire off to a good start. There are, of course, Affair.

### o comment

**O comment** Simple mathematics dictates tising revenue is not going to that if there is any logic in the stock market at all. Yorkshire and Yorkshire might somehow stock market at an forsshire and forsshire might somehow. Television's issue must he a incur the wrath of the IBA. success. There is little to distin. But the same arguments guish the company from the applied to Thames, priced on a other ITV majors, yet the issue p/e of 10.9 and offering an iden-is pitched at a price which tical yield: and look what hap-leaves it at a significant dis- peoed to that.

### Standard Chartered dismisses bid talk

### By John Edwards

Press reports that the Austra lian hanking group Westpac was planning a take-over hid for Standard Chartered Bank were "entirely speculative" and had "little credibility," according to Mr Michael McWilliam, Standard's group managing director. Mr McWilliam said yesterday

that he had no evidence of any planned bid, and it seemed an implausible idea bearing in mind the respective sizes of the two groups and the present weakness of the Australian dollar. At the moment Australian

banka generally were not in a good position to do anything overseas since their main prob lem was coping with their weak domestic currency. So the story made little sense, he added.

### Sirdar moves into curtain

### making

Sirdar, the hand-knitting yarn maker, has moved into the manufacture of ready made curtains through the acquisition of Eversure Textiles for an initial £6m cash.

Sirdar considers the acquisi-tion will contribute significantly to future growth. It is intended to expand the Eversure product range, and growth in the demand for own lahel products from certain principal retail customers is also anticipated. Eversure has been acquired from the directors and employees, and principal share-holder Mr David Wosskow is staying on as chief executive. The executive directors are to remain and will be joined by Mr F. G. Lumh and Mr J. Stuart of Sirdar. In the four years ended March 31 1936 Eversure lifted

its turnover from £8.1m to £11.6Sm, and its profit before tax from £49,000 to £808,000. Certain charges will not recur in future after completion; in 1985-86 they came to £70,000. Net tangible assets were £2.17m.

Further consideration is pay-able dependent on profits over the next two years.

### Arthur Wood in profit

A considerable improvement in demand enabled Arthur Wood & Son (Longport) to re-turn to the black in the first

and produce a profit of £53.814. The group, maker of fancy earthenware, teapots and beak-

# **Ayrshire Metal** improving after £0.3m interim loss

Reflecting depressed condi- engineering and steel febrica-tions throughout most of the tion group said they carried out first half of 1986, the results of a critical oppraisal of the cost Ayrshire Metal Products showed structure and that led to a 10 per cent roluction in numbers a downturn of £725,000 to B employed and annual cost savloss of £299,000. The directors halved the ings in excess of £460,000. The industrial buildings market, served by the Daventry interim dividend to 0.5p net and

interim dividend to 0.5p net and said the full year's payment would be considered on the formance. In the year 1985 the group made s profit of £760,000 and paid a final of 1p. With short lead timea at ach of the companies' operations, of the companies' operations, viding forecasting remained difficult, profits.

the directors said. But at the Sales in the 24 weeks ended end of July the group was June 13 1986 came to £8.34m operating at a modest profit. (£9m) with the UK contribution The directors of this light down to £7.39m (£8.68m).

### BOARD MEETINGS

|  |                               | -   |
|--|-------------------------------|-----|
| TODAY                                  | Lembert Howarth               | Sep |
| Interime:-American Trust. William      | Linred                        | Sec |
| Bedford, Astewana RST, Cambridge       | Matthews (Semand)             | Ber |
| Begiera, astewand hor, cambridge       |                               | Au  |
| Electronic Industrica, I. J. Oswhirst, | Perembe                       | ~~~ |
| Edinburgh Fued Managem, Ex-Lands,      | Peningular and Oriental Steam |     |
| Gold and Bees Matel Minae, Hangkong    | Nevigatios                    | Seg |
|  | Steel Burrill Jones           | Sec |
| and Shenghai Boeking, Merley, Ryse     |                               |     |
| International, Taylor Woodraw, Tample- | Stewert Wrightton             | Ser |
| ton Gelbreith and Hanaberger, Tenby    | United Newspapers             | Seg |
| Industrias. Weaseen.                   | Wates City of London Props.   | Sec |
| Inquetride, trodecern.                 | Williama Holdings             | Set |
| Final:-Randsworth Trust.               |                               |     |
| FUTURE DATES                           | Young and Co's Brewery        | No  |
| Interims:                              | Finals:                       |     |
|  | Banahanada                    | Sep |
|  | Benchmark                     |     |
| Hastair aspt 9                         | Clarks Hooper                 | Ser |

Sept 1 Benchm Sept 9 Clarks

### Oil and Gas **Technology Projects** European Community Funding

Funds are available from the Commission of the European Community for projects which promote new technology in exploration, production, transport or storage of oil and gas. The monies become repayable only if the project is exploited commercially and may cover up to 40% of the total cost. Interest is payable only on amounts outstanding after commercial exploitation.

The closing date for the next round of the Scheme is 28 November, 1986,

For a free booklet designed to help British companies seeking funds under the Community Technological Development Projects in the Hydrocarbons Sector Scheme, simply post the coupon; or telephone Mr J. Drummond of the Offshore Supplies Office on 041-221 8777 ext. 488.

Please send me the tree booklet about funds available under the Community Technological Development Project in the Hydrocarbons Sector Scheme.

| Vame    | <br>  |
|---------|-------|
| Company | <br>_ |

Addre

| Post to: Mr J. Drummond,<br>Ref. F 26/8, Offishore Supplies Office,<br>Alformbra House, 45 Waterloo Street, |  |
|---|--|

Glasgow G2 6AS.

### PENDING DIVIDENDS

Dates when some of the more important company dividend statements may be expected in the next few weeks are given in the following table. The dates shown are those of last year's announce-ments except where the forthcoming board meetings (indicated thus") have been officially notified. Dividends to be declared will not necessarily be et the amounts in the column headed "Announcement last year."

-1441

BLUE

from 5 cents to 7 cents.

| Date  | Announce-<br>ment last<br>year | Dotte  | Annoamce-<br>ment last<br>yest   |
|---|--------------------------------|--|--|
| AMEC  | laterins 4.0                   | Legal and  |  |
| Astoc   | Intelligence and               | General., Sept 75  | Hoterina 8.5   |
|   | Interim 1.9                    | Lond Merchent  |  |
| 8rit PortsSept 11<br>*BAT IndustsSept 10          | Interim 4.75                   | Securities:Sept 10   | Final 1.6  |
|   | Interim 6.0                    | Low and  |  |
|   | Interim 3.5                    | BonatSept 3  | Interim 3.8  |
| -BICCSepi 10                                      | Interim 12.0                   | MAT  | Final 12   |
| *BPAug 28   |                                |  | Laborate part  |
| BTRSept 11  | Interire 3.75                  | McAicine   | i  |
| *Babcock IndSapt 4                                | 0.4 minetel                    | (A.)   | Interim 3.0  |
| Bask of   |                                | Marley   | Interim 1.4  |
| ScotlandSept 25<br>Berratt                        | loterim 5.5                    | "Manzies (J.)Sept 29<br>"Metal   | Interito 1:35  |
| DevelomtsSept 24                                  | Finel 5.31                     | Closures, Sept 3   | Interim 2.2  |
| *Slug Circle                                      |                                | Morean   |  |
| IndustriesAug 27                                  | Interim doe                    | Grucibian Sept 12  | Interim 3,5  |
| Socker  | Interim 4.25                   |  |  |
| BowaterSept 11                                    | Inserim 3.75                   | Peerson  | Interim 4 7  |
| Brent CherksSept 16                               | Interiat 0.85                  | P & C  | interim 8.0  |
| *Britannia  |                                | *Pentiend  | AND ALL THE REAL PARTY   |
| ArrowAug 28                                       | Interim 1.2                    | IndustriesAug 25   | Interim 0.64   |
| British   |                                | "Prudential  | Interito 9.0   |
| AsronoaceAug 30                                   | laterim 5.8                    |  |  |
| British VitaSept 9                                | Latarba 3.3                    | RMC  | Interim 4.6  |
| *Brixton  |                                | "Ransomas  | inclusion a de la construction de la construcción d |
| EstateSept 18                                     | Interim 2.3                    | SimiSept 75  | Interim 1.5  |
| Brown Bovert Sept 19                              | interim 1.0                    | Reckarend  | demonstration of the   |
| *BunziBept 4                                      | Interim 4.25                   | ColoteraSept 11  | Interior 6.0   |
| Burmsh Oil Sept 12                                | Interim 4.8                    | Rio Tinto-   | foterin 7  |
| Cadbury   |                                | ZincSept 25<br>Rowntree  | torente (  |
| SchweppesSept 5                                   | Interim 1.6                    |  | Jaterin 4.0  |
| Cement  |                                | Mackintosb,Sept 19   |  |
| ReadstoneSept 4                                   | Interim 1.16                   | Sime Darby Sept 2  | Final 5.8 sen.   |
| Costs Patons Sept 17                              | laterina 1.9                   | Simon Eng Sept 10  | Langelen 2.6   |
| Combined Eng                                      |                                | -Slough  | Interim 2:2  |
| Stores  | Interim 2.45                   | EstatueAug 27  | Intering 5.  |
| Cons Gold   |                                | Steetley   | 11104412 9-  |
| FieldsSept 10                                     | Final 16.0                     | Stewart WrightsonSept 15   | Lotables à 7   |
| CooksonSept 6                                     | Interim 2.4                    | Sun Allanca Stat 3   | Interim 5.3<br>Interim 5.75  |
| Costain   | Interim C.O                    | Tarmac   | Incortes 2.2   |
| "Croda Intl Sept 16                               | Interim 3.0                    | Taylor   | a  |
| ORG   | leterim 3.3<br>Finel 14.0      | WoodrowAug 26  | Intertio 4.0   |
| Delgety   | Intarim 2.35                   | Travia and   | The second se  |
| Delta   | lozerim 3.5                    | ArnoldSept 17  | Interim 1.95   |
| Euro Easter Sept 16                               |                                | Tomer and  | and an area of the state   |
| "Euro FerriesSept 11                              | Interim 1.1<br>Interim 2.35    | Newell., Shot 12   | Interim 1.35   |
| Expamet IntlSept 10<br>*Exco letBept 2            | Interiar 1.6                   | Utd BiscuitsSept 12  | Interim 2.85   |
| Fisons  | leterim 2.16                   | *United  |  |
| Foseco  |                                | Newspapers   | Interior due   |
| MinespSept 27                                     | Interim 2.96                   |  | Interim 5  |
| Freemane  | laterim 2.3                    | "Wates City of   |  |
| "Hepworth   |                                | Lond Prope., Sept 3  | Interim doe  |
| CammicSept 11                                     | leterim 2.5                    | Lond PropeSept 3<br>"Weir  | Interim 0.76   |
| Hillsdown Bept 4                                  | Interim 1.2                    | *Williame  |  |
| *HK Shaeghal                                      |                                | HoldingsSept 1   | Interior due   |
| Bask., Aug 26                                     | laterim \$0.18                 | Wills Faber Sept 10  | Interim 5.0  |
| PIMI Sect 2                                       | Interim 2.2                    | Willie Faber Sept 10<br>Wilmpey (G.) Sept 25                                 | Interim 0.65   |
| Lasmo Sect 3                                      | Interim 4.6                    | Woolworth  | Interim 3.0 -  |
| LesmoSept 3<br>LedbmkeSug 29<br>Leing (J.)Sept 12 | leterim 5.0                    |  |  |
| Laing (J.)  | Interim 2.0                    | . Board meeting intim  | ted. † Righte  |
| Lance   | Interim 2.4                    | Board maating Intimi<br>Izana since made. \$ Tax<br>Izana since mede. \$ For | tree. 5 8crip  |
| Leporte   | Interim 3.2                    | issue alnos mede. I For  | ecas.  |
|   |                                |  | · · · · · · · · · · · · · · · · · · ·  |
|   |                                |  |  |
|   |                                |  |  |

### COMPANY NEWS IN BRIEF

ROCKWOOD HOLDING'S training courses, creates film 2.37m rights issue at 35p per and video sales and training share has been taken up as to programmes. Exercise of the 2.35m (about 99.2 per cent). £90,000 option will be no later 2.35m (about 99.2 per cent). £80,000 option will b. This includes the rights of W. than March 31, 1987. Canning, its holding company, to 2.03m which were taken up

GRAIG SHIPPING has pro-posed to its shareholders that it be allowed to purchase its own shares, up to a maximum of 160,000 ordinary and 40,000 A non-voting shares, equiva-lent to 10 per cent of its issued share capital. Although the directory have no impediate by a group of investors. The balance has been sold at 60p per share, and the proceeds will be distributed among the original allottees who have not taken up their rights. The shares are traded on the USM. CIRCLE Southern

directors have no immediate plans to exercise such powers, they have asked shareholders Cement, associate of Blue Circle Industries, reported sales to give them the authority to do so on a renewable annual circle industries, reported sales in the first six months of 1986 of A\$135,69m (f55,34m), up from A\$118,55m to give pre-tax profits of A\$33,22m (A\$23,46m). The interim dividend is raised

OVSTON ESTATE Agency's offer for Midland Marts is unconditional in all respects and remains open. At the first clos-NATIONWIDE LEISURE has ing date acceptances had been received in respect of 74 per

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. .

acquired Lakeview Mobile Home Park near Romford, cent of the shares, giving Oyston a total holding of 89.8 per cent. Essex, for fim cash from Lon-

At the annual masting of Appiled Helographics the chairman confirmed that pro-duction of foils was set to start next February. Transfer-All Purpose Folls, the company jointly set up with Transfer Print Foils, had formally received an offer of

Transfer-All Purpose Folls, the company jointly set up with Transfer Print Folls, had formally received an offer of graots totalling £1.4m from the Department of Trade. That would create some 130 jobs over the next two years in Washington, Tyne and Wear,

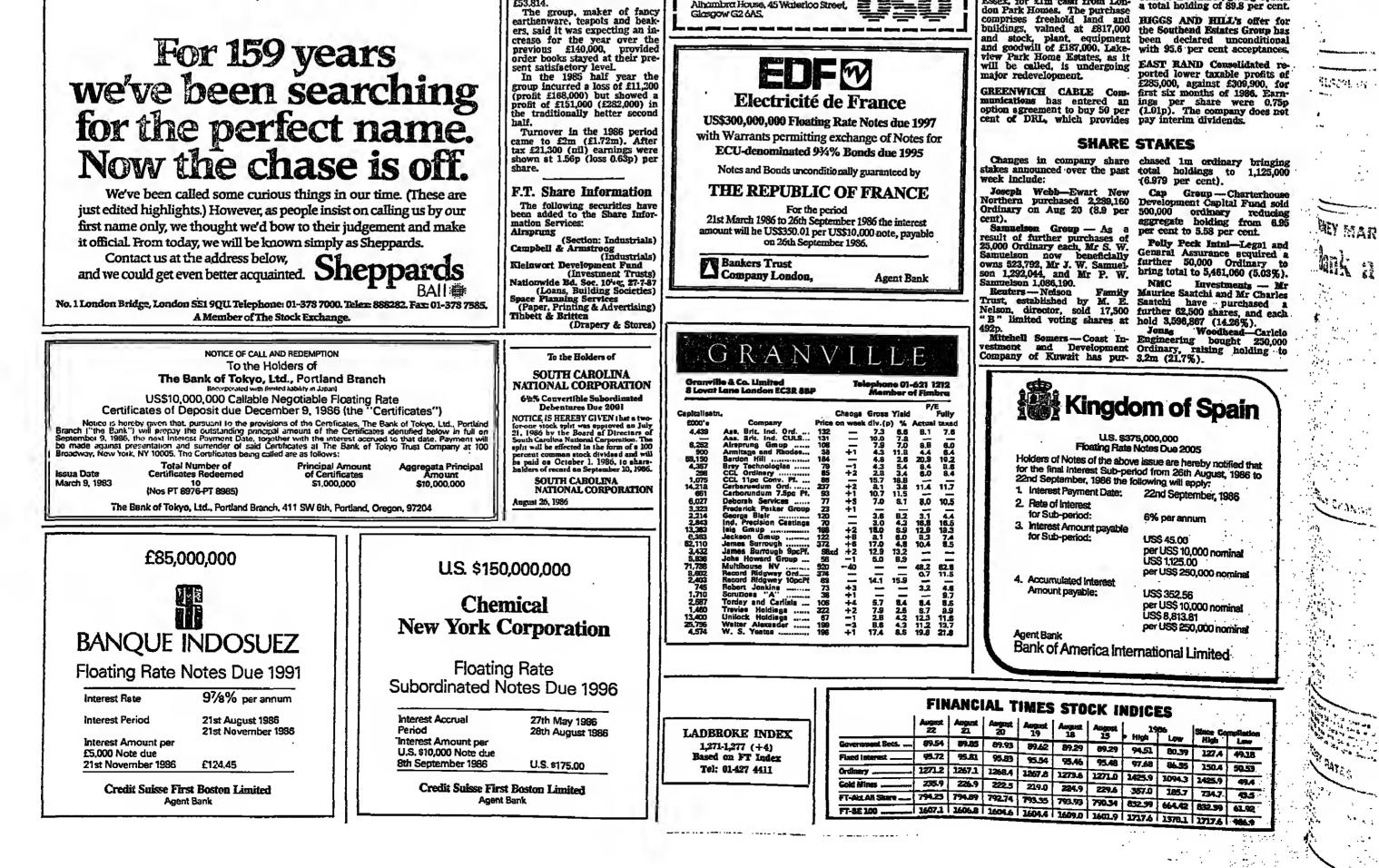
Orders for the US. Orders for the standard emhossed holograms for plastic cards had already been received from various financial and other

MELLIPRARE & BYADEN oppard, Pelly and Alleard SHEPPARDS, PELLY, PRICE & POTT SHEPPARDS AND CHASE

companies in the UK, Switzer-land and the US.

Shareholders were also institutions,

Holographics expansion plan



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# CURRENCIES, MONEY and CAPITAL MARKETS

### FOREIGN EXCHANGES

# **Pressure grows on Bundesbank**

### BY JONAS CROSLAND

their drive to breach live into a sarking US economy. The first jolt came on Tuesday when it was announced that US second quarter growth was up a revised 0.6 per cent from 1.1 per cent previously. This was sufficient to upset holiday season lethargy and paved the wey for further measures to stave off forwing signo of stagnation and a weighty protectionist lobby. Thursday's cut in the US dis-count rate to a nine year low of 5! per cent formed the second frated attention on bow West Germany and Jepan would res-pond. Both countries havs siressed the lack of good reason in Cutting rates for purely domestic purposes although to heat this is an essential pre-requisite. The US suthorities have been keren to explore a crippling trade imbalance and while othors may stress that they have done their hit hy kceeping their own house in order, the US coonomy forms too large a part of tho world's financial machinery to bo ignored. To be succinct, the US eco-

Bank of England Index

71.0 10.3 77.0 101.4 96.8 89.3 140.0 169.1 129.5 69.6 47.0

218.5

changes: ·

Close

11.47

214.1

1,4870-7.4880 2.0670-2.0680 3.42<sup>1</sup>-3.42<sup>1</sup>2 62.80-62.90

10.841-10.851 \$,951-9,964 to.24-10.25

2274-2287 21.38-21.42 2.45-2.46

Spot 1.4875 3.04 9.9575 2.4550 228.0

August 22

Sterling..... U.2. noliar Canadian Oellar Austrian Schilling

Belgian Franc Danish Kroner

lug 22

Selgiu

Ireland W. Gar,

SP8IN.

France Swodon

Japon Austria

1.17

11519

ranc ...

Guaranty

(base average 1975=100).

Day's spread

4865-1.5020 3.45

11.473-11.563 1.1050-1.1110

2093<sup>1</sup>-2113<sup>1</sup>7 10.84<sup>1</sup>3-10:94<sup>3</sup>4 9.95-10.03<sup>2</sup>4

10.24-70.37%

21.38-21.65

Stonch Frenc .....

5.031-3.064 214.86-211.9

1999-1982=100. Bank of England Index

87.0

Prev. close

Spot \$1.4850.1.4945.81.4970.1.4989 month 0.570.55 pm 0.500.49 pm months 1.481.47 om 1.391.37 pm months 4.954.89 pm 4.104.60 pm in check

Aug. 22

4580-1.4595 0.9750 4725-8.47601.5490-1.0500 80.53-80.66 (15.77-15.84

Three

p.s. months 4.40 1.50-1.47pm 2.12 0.87-0,71pm 0.25 4P<sub>2</sub>-37<sub>2</sub>pm 3.10 46-36pm 1.70 3y-1<sup>4</sup>pm -0.54 0.05-0.25ds 0.92 4y-4pm -6.57 236-482dis -4.58 136-214dis -1.15 4-8dis -4.01 11<sup>4</sup>-12<sup>4</sup>xdis -4.01 11<sup>4</sup>-12<sup>4</sup>xdis -4.01 11<sup>4</sup>-12<sup>4</sup>xdis -4.01 11<sup>4</sup>-12<sup>4</sup>xdis -1.15 4-8dis -4.01 11<sup>4</sup>-12<sup>4</sup>xdis -1.15 4-9dis -1.15 2<sup>4</sup>-2<sup>4</sup>xdis -1.15 2<sup>4</sup>-2<sup>4</sup>xdis -1.15 3<sup>4</sup>-2<sup>4</sup>xdis -1.15 3<sup>4</sup>-2<sup>4</sup>xdis

5-month 1,4603 2,9620 9,8663 2,3907 222,53

12-mor 1.4387 2.8954 9.7817 2.9322 211.86

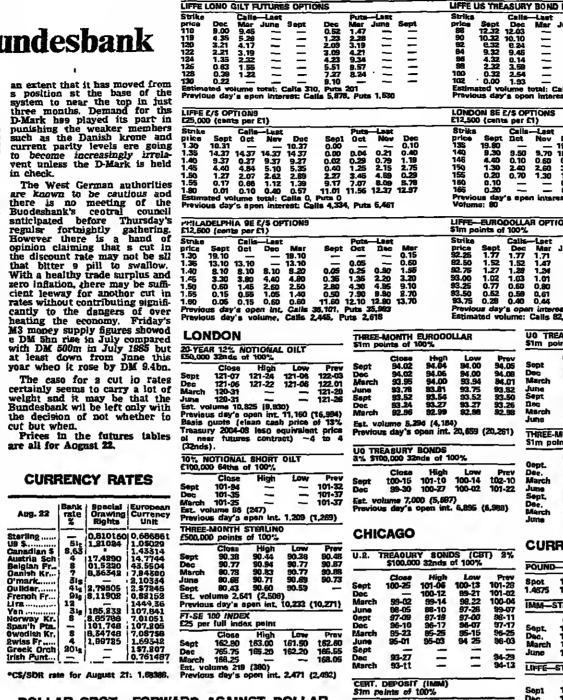
3-month 1.4727 2.9977 9.9046 2.4205 225,12

% p.s.

0180

2.99 7.53 4.74 2.61 5.43 -0.54 5.43 -0.54 5.43 -0.54 5.43 -0.51 5.43 -0.51 5.43 -0.52 5.43 -0.54 2.08 0.04 4.49 0.50

\* Ssiling rate



Yes per 1.000: Franch Fr per 10: Lics per 1.000; Beig Fr per 100.

| Sterling 0.810160 0.686861<br>U9 \$ |   |   | 0.810160 0.686861 £500,000 points of 100%                                |                                   |  |                          |                       |                          |    |  |
|-------------------------------------|---|---|--|-----------------------------------|--|--------------------------|-----------------------|--------------------------|----|--|
| Canadia<br>Austria S<br>Belgian     | 5ch 4 17.4<br>Fr. 8 01.5  | 1.43314<br>14.7744<br>220 43.5504                                     | Sept 90.3<br>Dec 90.7  | 8 90.44<br>7 90.94                | Low<br>90.36<br>90.77                                | Prev<br>90.48<br>90.87   | U.2. 7                | REAOUR<br>\$100.000      |    |  |
| Oulider<br>French F                 | 31g<br>41g 2.79<br>7 91g 8.11   | 902 0.88152   | June 80.6<br>Sept 80.4<br>Est, volume 2                                  | 8 90.71<br>3 90.60<br>2,641 (2,50 |  | 90.88<br>90.73<br>       | Sept<br>Dec<br>March  | Close<br>100-25<br>99-02 | 11 |  |
| Yen<br>Norway<br>Span'h F           | Kr. 8 8.85  | 788 7.01051   | FT-SE 100 INI<br>£25 per full in   |                                   |  |                          | June<br>Ospt<br>Dec   | 96-05<br>97-09<br>96-10  |    |  |
| Owedish<br>Swiss Fr<br>Greek O      | Kr. 8 8.34<br>4 2.99  | 748 7.08758<br>785 1.69542<br>- 1\$7.807                              | Clos<br>Sept 162.8<br>Dec 765.7  | 0 t63.00                          | Low<br>161.50<br>162.20                              | Prev<br>162.60<br>165.55 | March<br>June<br>Sept | 95-23<br>95-01           |    |  |
| •C\$/SDR                            | rate for Aug  | - <u>  0.76148</u>  | Est, volume 2  | 19 (380)                          | 2.471 (2   | 168.05                   | Dec<br>March          | 93-27<br>93-11           |    |  |
|                                     |   |   |  |                                   |  | 1                        |                       | DEPOSIT                  |    |  |
| DOL<br>Aug 22                       |   |   | One meath  | % 1                               | Three northis  | "R                       | Sept.<br>Dec.         | Close<br>94,35<br>94,35  |    |  |
| UKT                                 | 1.4865-1.5020   | 1.4870-1.4880   | 0.56-0,53c pm  | 4.40 1.                           | 50-1,47pm  | 3.99                     | EXC                   | HANG                     | 1  |  |
| Caneda<br>Nathind,                  | 1.3690-1.3548<br>1.3690-1.3915<br>2.2975-2.3070   | 1.3445-1.3455<br>1.3906-7.3915<br>2.3055-2.3065                       | 0.60-0.30c pm<br>0.25-0.28c dis<br>0.16-0.13c pm                         | -2.29 0.                          | 70-1.20pm<br>83-0,90d1s<br>50-0.45pm                 | -2.49                    | Aug.22                | £                        |    |  |
| Belgium<br>Oenmark                  | 42.20-42.34   | 42.20-42.30   | 3-5c dis<br>1,40-2,00ore die   | -1.29 11                          | -16die<br>50-6-26dis                                 | -1.28                    | 28                    | 0.672                    |    |  |
| W, Ger,<br>Portugal<br>Spain        | 2.0370-2.0470<br>145-146<br>132.95-133.45   | 2.0440-2.0450<br>145%-146<br>133.15-133.25                            | 85-100c dis  | -11.15 30<br>-8.32 22             | 5-275dis   | -10.46                   | DM<br>YEN             | 0.324                    |    |  |
| Italy<br>Norway                     | 1406-1411 <sup>1</sup> 2<br>1.27 <sup>1</sup> 4-1.30 <sup>1</sup> 4<br>8.67 <sup>1</sup> 4-6.70 | 1407*-1408*<br>7,29*-7.29*<br>0,69*-5,69*                             | 6-7 lite die<br>4.90-5,30ore dis<br>0.90-1,00c dis                       |                                   | -18 <sup>1</sup> 2dis<br>, 15-16, 550<br>00-3, 30drs |                          | F Fr.<br>S Fr.        | 1.004                    |    |  |
|                                     |   |   |  |                                   |  |                          |                       |                          | /= |  |
| Sweden<br>Jepan<br>Austria          | 0.841 - 6.891<br>152.80-153.70<br>14.331 - 14.384   | 8.88 <sup>1</sup> 6.99<br>153.30-153.40<br>14.36-14.36 <sup>1</sup> 2 | 1.95-2.15ore dis<br>0.15-0.11y pm<br>7 <sup>1</sup> <sup>1</sup> -aro pm | -3.58 5.<br>1.06 0.<br>0.94 3-    | 44-0.39pm  |                          | H FL<br>Ura           | 0.292                    |    |  |

NEW YORK RATES

Treasury Bills & Bonds One month Two month Three menth Sig month .....

Two year Thras year Four year Seven year So year So year

84-915 578-0 878-0 551g 416-44 4-4-4-6 71g 754 1055-1078

0.14 5.33 9.51 0.89 0.87 1.06 7.27

Aug. 22 | Aug. 15

t UK and lealend are quoted in US currency. Forward premiums and discounts apply to the US dollar and not to the individual currency. Beights lasts is for canvertible frances. Financial irans 42,70-42,80.

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Long.term Eurodellate: two years 612-672 per cant three years 1-714 per can

(4 pm)

EURO-CURRENCY INTEREST RATES

notice

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tsrm

t014-1038

| AL MARK  | EIS  | Company  | Notices   |
|--|--|--|---|
| Puts-Last         Striks         C           Mar June Sept         price Sept         price Sept         C           1.47         —         83         72.32         12           2.28         —         90         10.32         10           3.19         —         92         0.32         10           9.34         —         94         9.32         9           9.57         —         96         4.32         0           9.57         —         98         2.32         3           2.4         —         100         0.32         2.00           9.57         —         98         2.32         3           2.4         —         100         0.32         2.00           9.57         —         98         2.32         3           2.4         —         —         100         0.32         2           2.3         —         —         100         0.32         2           2.3         —         —         100         0.32         2           3.10         Extimated volut         Previous day's         3 | 10   | Bank of Tokyo (Cur<br>(Incorporated with limited linb)<br>230,00<br>GUARANTEED FLOATING  | 00,000  |
| Oct         Nov         Dec         price         Sept         D   | Per E1)<br>Palle-Last Puts-Last<br>let Nov Dec Seat Oct Nov Dec<br>  | The Bank of<br>(Incorporated with first<br>In accordance with the provisions of it<br>the rate of interest for the three n<br>21st November, 1986 has been fixed<br>No. 12 will therefore be payable on 21<br>coupon from Notes of £50,000 nom<br>Notes of £5,000 nominal.   | Guaranteed by<br><b>Tokyo, Ltd.</b><br>aited liability in Japan)<br>the Notes, notice is hereby given that<br>nonths period 21st August, 1986 to<br>at 9 per cent. per annum. Coupons<br>Ist November, 1986 at £1,244 - 52 per<br>ninal and £124 - 45 per coupon from<br>IG & CO. LTD.                        |
| Oct         Disc         Mar         price         Sept         C            0.15         92.25         1.77         1           0.05          0.60         92.50         1.52         1           0.25         0.30         1.85         92.75         1.27         1           1.35         2.20         3.20         93.00         1.02         1           4.30         4.95         9.10         93.25         0.77         0           7.90         9.80         8.70         93.50         0.52         0           12.10         12.60         13.70         93.75         0.28         0           Prits         35.983         Previous day's auts         ats         4.518         Estimated volur   | alls-Laet Puts-Last<br>Dec Mar June Sept Dec Mar June<br>52 1.47 - 0.00 0.00 0.00 .00<br>.52 1.47 - 0.00 0.00 0.02 -<br>.53 1.24 - 0.00 0.01 0.04 -<br>.03 1.01 - 0.00 0.01 0.06 -<br>.50 0.80 - 0.00 0.03 0.10 -<br>.59 0.61 - 0.00 0.03 0.10 -<br>.59 0.61 - 0.00 0.03 0.24 -<br>.59 0.61 - 0.00 0.07 0.16 -<br>.50 0.50 -<br>.50 0.50 0.50 -<br>.50 0.50 0.50 -<br>.50 0.50 0.50 0.50 -<br>.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 | GEOFUND CONVERTIBLE CONDS<br>DIVIDEND NOTICE<br>NOTICE IS HEREDY GIVEN TO holders<br>of Benter Shares Di Geotunider (Source)<br>Bonds Hol on or after 2 September, 1986,<br>Payment of n final Structure of USS0.11  | CLASSIFIED ADVERTISEMENT<br>RATES<br>Per column<br>line cm<br>(min. (min.   |
| THREE-MONTH EURODOLLAR           Sim points of 100%           Close High Low Prov.           Sept 94.02 94.04 94.00 94.05           Dec 94.02 94.06 94.00 94.05           March 93.95 94.00 93.94 94.01           June 93.76 93.81 93.75 93.82           Sapt 93.52 93.54 93.52 93.52           Dec 93.24 93.27 93.27 93.27           March 92.96 92.99 92.98           Previous day's opan int. 20,659 (20,261)   | Sept         94.76         84.77         \$4.66         94.73           Dec         94.86         94.81         94.79         94.87           March         94.83         94.81         94.79         94.87           Juna         94.83         94.69         94.66         94.71           Sept         94.42         94.47         94.85         94.79         94.85           Juna         94.83         94.69         94.66         94.70         94.85           Dec         94.20         94.21         94.12         94.28         94.25           March         63.56         63.96         53.96         53.95         33.95         93.75           June         93.72         93.73         93.69         93.75         93.69         93.75  | 10 Cents) per share in fulle on 18 August,<br>1000, will be an abalant against surrender of<br>Coupon Paying Agents: of the following<br>Coupon Paying Agents: of the following<br>Coupon Paying Agents:<br>MANUFACTURERS HANDVER SANX<br>(GUEENSEY) LIMITED, P.D. Bor 62,<br>Manutacturers Hunover House. La Tru-<br>chot. SL Peter Port. Guernsoy, Channel<br>Lawrer Trues, Barnover Coupon<br>Lawrer Crunars, Handover Canton<br>Luxembourg, S.A., Boc 007, 39<br>Boulward Prints, HANDVER CANTED,<br>LUXEMBOURG, S.A., Boc 007, 39<br>Boulward Prints, London EC2P 2EN;<br>KREOIETBANK S.A. LUXEMSOURCEOISE.<br>43 Boulward Reval. Luxembourg.<br>Registered shnreholders will be sent a<br>cheave of nofite of reinestment in accor-<br>dance with Instructions stready recorded.<br>ST ORGER OF THE SDARD. | 3 lines J Š cms,<br>Commercial & Industriel<br>Property 11.50 39.00<br>Residential Praporty 9 00 30.00<br>Aspointments 12.00 41.00<br>Susiness, Investment<br>Osperunntise 11.50 39.00<br>Business lot Sale/<br>Wented 11.50 39.00<br>Personal 8.00 30.00<br>Moior Cars 8.00 30.00<br>Moior Cars 1 0 00 30 00 |
| U0 TREASURY BONDS<br>3*5 5700,000 32nds of 100%<br>Close High Low Prev<br>Sept 100-15 101-10 100-14 102-10<br>Dec 98-30 100-27 100-02 101-22<br>Est. volume 7,000 (5,687)<br>Previous day's open int. 5,895 (6,988)<br>CHICAGO   | Sim points of 100%<br>Close High Low Prev<br>Oept. 94.00 94.04 93.39 94.05<br>Dec. 94.01 94.05 83.59 94.07<br>March 93.94 93.58 93.81 93.99  | Clubs<br>EVE har outlived the others because of a<br>policy of tair play and value for money.<br>Supper from 10-3.30 am. Disco and top<br>musicians, alamorous hospesses, exciting<br>scorshows, 180. Regent St., W1, 01-734<br>0557.  | Connects & Tenders 11.50 39.00<br>Sock Publishors — net 22.00<br>Promism positions available<br>E3.00 per single column am astre<br>All prices exclude VAT<br>For further devails with the<br>Classified Advertisemont<br>Manager<br>Financial Times<br>10 Cannon Street, EC4P 4BY                            |
| U.2. TREAOURY SONDS (CBT) 2%<br>\$100.000 32nds of 100%<br>Close High Low Prev<br>Sept 100-25 101-06 100-13 101-25<br>Doc  | POUND-S         (FOREIGN EXCHANGE)           Spot         1-mth.         3-mth.         6-mth.         12-mth.           1.4875         1.4821         1.4727         1.4603         1.4387           IMM-STERLING Sc per £         1         1.4735         1.4355         1.4730         1.4387           Sept.         1.4755         1.4735         1.4730         1.4730         1.4390           Lass         1.4755         1.4730         1.4390         1.4390  | Eurobonds • DM Bor   | nds · Schuldscheine   |
| June 95-01 95-03 94 25 96-03<br>Sept 94-29<br>March 93-11 94-13<br>CERT. DEPOSIT (IMMA)<br>SIM paints of 100%<br>Close High Low Prev<br>Sept. 94.25 94.40<br>Dec. 94.35 - 94.41  | March         1.4465         1.4585         1.4540         1.4680           June         1.4300         1.4300         1.4300         1.4500           LtFFE         STERLING £25,000 \$ per £         Close         Figh         Low         Prev           Sop1         1.4900         1.4903         1.4903         1.4908         1.4948         1.4948           Dec         1.4760         1.4800         1.4903         1.4948         1.4948           Dec         1.4760         1.4800         1.4794         1.4818           March         1.4760         1.4705         1.4705  |  | ud Offices, RÖ. 80x 1128, 4000 Düsseldorf 1<br>ales: Talephone 8:20 31 22/8:26 31 41  |
| EXCHANGE CROSS RAT<br>Aug.22; £ 2 0M YEN<br>6 0.572 1. 2.045 125.4<br>DM 0.324 0.499 1. 76.00<br>YEN 4.386 5.524 13.33 1000.<br>F Fr. 1.004 1.494 0.053 229.0<br>S Fr. 0.407 0.606 1.238 22.9.0  | F.F.         S.Fr.         H.FL         Una         C.8         B.Fr.           8.952         2.455         3.430         8090.         8.068         08.85           6.695         1.001         2.806         1408.         1.390         48.26           5.875         0.808         1.128         698.0         0.680         20.07           45.07         10.77         16.04         9186.         9.056         275.7           10.         2.465         5.445         8105.         2.076         05.18  | Laxembourg<br>WestLB International S.A., 32–34, bou<br>Laxembourg, Telephone 4 4741-43 - Tel<br><u>Hong Kong</u><br>Westdeutsche Landesbenk, BA Tower, 08<br>Hong Kong, Telephone 5-8420288 - Telex<br>Marketmakers in Deutschmark   | Int Floor, 12 Harcourt Road,<br>75142 HX<br>Boonds WestLB   |
| H F1, 0.298 0.434 0.886 66,47<br>Lira 0.471 0.710 1.451 106,8<br>C 8 0.484 0.719 1.470 110,0<br>B Fr, 1.591 8,361, 4,837 309,9   | 2,903 0,716 1. 610.6 0.603 19,52<br>4,154 1,173 1.038 1000. 0,987 00,01  | Westo  | leutsche Landesbank   |

19

THE BALL was rather uncercomoniously dropped into the court of the West German Bindesbank last week as the US Federol authorities stepped up us sarging US economy. The first jult come on Tuesday

CURRENCY MOVEMENTS OTHER CURRENCIES

Ousranty Change 2

-\$1.5 +\$0 -1\$.8 +8.2 -6.5 +0.0 +18.0 +28.9 +11.9 -1\$.8 -10.1 +09.4

average

POUND SPOT-FORWARD AGAINST POUND

One month

0.56-0.53c pm 0.47-0.32c pm 14-14c pm 20-13c pm 14-14c pm 20-13c pm 14-14c pm 12-14c pm 14-14c pm 14-

11-7-y pm 87-81-gro pm 15-11-c pm

Belgian rate is for convertible france. Financial france 63,55-63.66.

Six-month forward doiler 2,75-2.70c pm, 12-month 4.93-4.83c pm.

FORWARD RATES AGAINST STERLING

7-month 1,4821 3,0250 8,9351 2,4424 226.97

Mations

| EMS EURO   | PEAN  | CURREN   | CY UN                                      | IT RATE  | S  | Starling<br>U.9. fiellar<br>Can Oellar<br>O Guilder           | 1016-1038<br>6-618<br>758 818<br>478-518    | 101n-104e<br>513 612<br>718-813<br>5-516       | 10-10-12<br>578 6<br>712-812<br>518-514         | 5+2-5+4<br>6/4 9/2<br>6 5+2-5+4                       | 858934<br>5-2-5-8<br>9-3-8-1<br>5-0/6 | 858   |
|--|---|--|--|--|--|---|---|--|---|---|---------------------------------------|-------|
| <u></u>  | Ecu<br>contral<br>rates                             | Currency<br>emounts<br>against Ecu<br>August 22        | % change<br>trom<br>central<br>rato        | % change<br>adjusted for<br>divergence             | Divergence<br>limit %  | Sw. Frane<br>Osutschmrk<br>Fr. Franc<br>Italian Lira          | 41e-458<br>7-718<br>11-15                   | 10-104<br>456-454<br>746-136<br>1156-1236      | 412-472<br>438-412<br>738-758<br>11-1112        | 44.44<br>44.44<br>112.15<br>1054.1114                 | 416 414                               | 47    |
| Belgian fraile<br>Cunish Krone<br>German Dimaik<br>French Franc<br>Dutch Gaildof | 43.1138<br>7.81701<br>2.11083<br>0.87318<br>2.37833 | 43,5504<br>7,94355<br>2,10334<br>0,89182<br>2,37295    | +1.01<br>+1.62<br>-0.35<br>+0.27<br>-0.25  | +0.90<br>+1.51<br>-0.46<br>+0.10<br>-0.38<br>-0.67 | 士1.5368<br>士1.6403<br>士1.1127<br>士1.3659<br>士1.5069<br>士1.6683 | 8.Fr.(Fini<br>B.Fr.(Con)<br>Yen<br>O. Krone<br>Asian \$ (8ng) | 712.734<br>712.812<br>812<br>812<br>512.012 | 714.712<br>712 B<br>01 518<br>91-10<br>012 012 | 748-758<br>718-755<br>5-574<br>10-1012<br>548 5 | 716-738<br>7:6-756<br>434-473<br>1016 1056<br>5 7-0-1 | 10-101e                               | 5 495 |
| Irish Punt<br>Italian Linj   | 0.764976<br>1476.95<br>aro far E<br>untency. Ac     | 0.761487<br>1449.36<br>cu, therefore<br>Ljustment cele | -0.46<br>-1.87<br>positive cf<br>ulsted by | ⊷1.87<br>ange denates                              | ±4.0734  | Long.term<br>feur years 7%<br>ale call far L                  | -7ª per co                                  |  | a 15-7% pe                                      | r cent nomi   | inal. Ohert-                          | -28M  |

# call for US Colliers and Japanese Yan; ethere two days' natice. MONEY MARKETS Bank applies the brakes

 SIMIE LESS honest than others would clum that they oever thought UK base rates were hought be cut soon even before the Eink of English 's not yet's stanal last week. Even if a majority of those kept a clear head, there is always a rippin of entilusiasm to greet a cut in tates elsewhere. The half point US discount red travards amber. It may be that the authorities are keen to keep a card or two up their sleevo with Big Bang looming and privatization programmes itat form un important part of Grevernment funding. To icst the official water is
 UK elsering bank base lending rate 10 per cent since May 22 wite common which is why dis-trate reduction was not a greet below accepted dealing rates. The response was not so much fresty, more straight out of the deep freeze which was not allo gother unexpected. The Bank has made it clear thet domestic sarily worrant a cut in rstes. This is something that West have also been saving (although minimum ievel... 883 i 603
 Somewbat) but it seems likely thet one or both of them will yield to pressure from the US. The response was not so much fresty, more straight out of the sarily worrant a cut in rstes. This is something that West have also been saving (although minimum ievel... 883 i 603

WEEKLY CHANGE IN WORLD INTEREST RATES

|   |                          |                     | كيا الكالد ابدينية المستقربين م  |                 |                      |
|---|--------------------------|---------------------|--|-----------------|----------------------|
|   | Aug. 82                  | change              | NEW YORK   | Aug. 22         | chang                |
| LONDON<br>Baco raiss<br>7 day interbank                   | 10<br>103n               |                     | Prime rates  | 9<br>57<br>0.01 | Unch'<br>1_3<br>0.92 |
| Smith Intol BANK  | 0 <del>3</del><br>9 2347 | + 0.8093<br>Unch 'd | 3 Mth. Treasury Bills<br>9 Mth. Treasury Bills<br>3 Mth. C D   |                 | -0.11                |
| Bond 1 Bills<br>Band 2 Sills<br>Annd 3 Sills              | 01<br>93                 | Unab 'd             | Lombard  | 0.5             | Unch                 |
| Rand 4 alls<br>A Min. Trescury Bills<br>1 Mth. Bank Bills |                          | - 10                | One mth. Merbank<br>Three month  | 4.025           | +0.02                |
| 5 Mth. OR#K 4414<br>TOKYO                                 | 4,78125                  | +0.125              | PARIS<br>Intervention Rate<br>One mth. Interbank   | 7<br>718        | Une h'<br>Unch'      |
| One month Bills   | 4,71870                  |                     | Three month  | 715             | j−nŧ                 |
| Citussels<br>Our rights<br>Thise ments                    | 718                      |                     | - One month<br>Three month   | 112             | 1+18<br> Unch'       |
| AMSTERDAM   | 5.3<br>518               |                     | DUBLIN<br>One month<br>Three month   | 819<br>1041     | י+ הר<br>י+ הר       |
| Thursd month  |                          |                     | the second s |                 |                      |

Lon-lun-band 1 bills cantum in up to 14 days, band 2 bills 15 to 33 days bond 2 bills 24 to 63 days and band 4 bills 64 to 91 days, Ratas quoted repr acti Sank of England buying of saling rates with the money market. In oth-matics artes are generally deposit rates in the domestic money market an Lont Bank of Long gen contres rates are gen

### MONEY RATES

| August 22                                    | Ov'r-nig'l Month    | Two<br>Months            | Three<br>Months N   | Six Lombard<br>Ionthe In'v'ti'n |
|--|---------------------|--------------------------|---|---------------------------------|
| Fienklurt<br>Paris<br>Zulichan<br>Anrsturdam | 4.40 4.50 4.45 4.60 | 14 40 4.\$5,<br>7, 2 7,2 | 4.40.4.554.4<br>7.2.7.57<br>41.44<br>5.44<br>4.71875<br>4.71875 | 40 4,55 0.5                     |
| Cruzecie<br>Gyblin                           | 1.30 9. 10          |                          | 7   | 18·1034                         |

| -   | UK clearing bank base<br>lending rate 10 per cent<br>since May 22 |
|-----|---|
| · - |   |

BANK OF ENGLAND TREASURY BILL TENDER

# FT LONDON INTERBANK FIXING

| (11.00 a.m.)  | -   |   | Sł  | x meetha  | US della   | m  |
|---|---|---|---|---|--|--|
| Three months  | US deller                                   |   | bid   | 5 <u>+</u> 2  | Offer  | 5-3                                      |
| PHC 0 15  | Oftar 0                                     | 15  |   |   | kg ez 11   |  |
| The fixing rates so<br>means, reunded to<br>sixtsenth, of the bid<br>lor \$10m Quoted by  | the neare<br>and offer                      | ist ene-<br>ed relet  |   | isy. The<br>ter Bank,<br>Sank. Sa   | benks an<br>Reck e<br>Inque Na:  | a Natio<br>I Tak<br>Janale               |
|   |   |   |   |   |  |  |
| Auguat 22   | Over  | 7 days  | Month   | Three<br>Months   | Six<br>Months  | One<br>Yea                               |
| August 22   | Dver<br>night                               | / 7 days  | 2 972 1072  | Menths  | Months<br>9-c-9-t  | Yea<br>9:29                              |
| August 22<br>Intarbank<br>Sterling CDs  | Over<br>night                               | 7 days<br>notice<br>104-10                                      | 2 97e 107E  | Menths<br>95:-078<br>95:-95   | 9-2-9-4<br>9-2-9-4   | 9:29<br>9:19                             |
| August 22<br>Interbank<br>Sterling CDs  | Over<br>night<br>0.107<br>1012              | 7 days<br>notice<br>1014-101                                    | 2 978-1072<br>978-10<br>978-10<br>5 0-8   | Months<br>95:-078<br>95:-958<br>85:-958<br>104  | 9-:-9-;<br>9-:-9-;   | 9:29<br>9:19                             |
| August 22<br>Intarbank<br>Berling Cla<br>Local Authority Bond<br>Local Authority Bond<br>Ilacount Mit. Bopos  | Over<br>night<br>0.107<br>1012<br>7.104     | 7 days<br>notice<br>1014-101<br>10-102                          | 978-1077<br>974-10<br>974-10<br>56 0-8<br>10<br>10  | Menths<br>95:-073<br>95:-953<br>85:-953<br>104<br>95:-  | Months<br>9-:-9-:  | 9:29<br>9:19<br>9:29<br>19:29<br>10-     |
| August 22<br>Intarbank<br>Starling Cla<br>Local Autharity Benda<br>Discount Mit, Bapos<br>Comeany Jepos   | Over<br>night<br>0.107<br>1012<br>7.104     | 7 days<br>notice<br>1014-101                                    | 978-1077<br>978-10<br>5 0-8<br>1 10<br>16 954<br>10<br>16 954   | Menths<br>95:-073<br>95:-954<br>85:-954<br>104<br>9:2<br>9-1-8-1  | Months<br>9-:-9-:<br>9-:-9-:<br>9-:-9-:<br>10::<br>9-:-                            | 9:29<br>9:19<br>9:29<br>10-<br>10-       |
| August 22<br>Intarbank<br>Sterling CDs.<br>Local Authority Bonds<br>Ilscount Mitt. Bapos<br>Company Depos<br>Finance Heuse Dapos  | Over<br>night<br>0.107<br>1012<br>7.107     | 7 days<br>notice<br>1014-101<br>10-102                          | 978-1077<br>974-10<br>974-10<br>56 0-8<br>10<br>10  | Menths<br>95:-93;<br>85:-93;<br>104;<br>9-7-8-1<br>9-7-8-1<br>9:4   | Months<br>9-2-9-5<br>9-2-9-5<br>9-2-9-5<br>10:3<br>10:3<br>9-4<br>9-7              | 9:29<br>9:19<br>9:29<br>19:29<br>10-     |
| August 22<br>Intarbank<br>Sterling CDa.<br>Local Authority Bonds<br>Discount Mitt. Dapos<br>Company Depos<br>Finance Heuse Dapos<br>Treasury Bills (Suvi<br>Rank Bille (Buy)                      | Over<br>night<br>0.107<br>1012<br>7.104<br> | 7 days<br>notice<br>1014-101<br>10-102<br>14 976-102<br>10-102  | 2 872·10π2<br>974·10<br>874·10<br>80.8<br>10<br>12.10·10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.10π2<br>10.100 | Menths<br>95:-93:<br>85:-95:<br>104<br>95:-95:<br>104<br>95:-<br>9-7-8<br>105:<br>9:-<br>9:-<br>9:-<br>9:-<br>9:-<br>9:-<br>9:-<br>9:   | Months<br>9-2-9-1<br>9-2-9-1<br>9-2-9-1<br>10:5<br>9-2<br>9-2<br>9-2               | 9:29<br>9:19<br>9:29<br>10-<br>10-       |
| August 22<br>intaribank<br>Starling CDa<br>Local Autharity Depos<br>Local Autharity Depos<br>Discount Mit, Depos<br>Company Depos<br>Finance House Depos<br>Sonk Bills (Suy:<br>Bonk Bills (Buy). | Over<br>night<br>0.107<br>1012<br>7.104<br> | 7 days<br>notice<br>1014-101<br>10-102<br>14: 97:-107<br>10-103 | 2 872-1077<br>974-10<br>5 0-2<br>1 274-10<br>5 0-2<br>1 0<br>1 0<br>1 0<br>1 0<br>1 0<br>1 0<br>1 0<br>1 0  | Menths<br>95:-078<br>85:-954<br>85:-954<br>9:-<br>9:-<br>9:-<br>9:-<br>9:-<br>10:4<br>9:-<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:- | Months<br>9-2-9-3<br>9-2-9-3<br>9-2-9-3<br>10:5<br>9-4<br>9-7<br>9-7<br>9-7<br>9-7 | Yea<br>9:29<br>9:29<br>10-<br>10-<br>10- |
| August 22<br>Intarbank<br>Sterling CDa.<br>Local Authority Bonds<br>Discount Mitt. Dapos<br>Company Depos<br>Finance Heuse Dapos<br>Treasury Bills (Suvi<br>Rank Bille (Buy)                      | Over<br>night<br>0.107<br>1012<br>7.107     | 7 days<br>notice<br>1014-101<br>10-102<br>14 976-102<br>10-102  | 2 872-1077<br>974-10<br>5 0-2<br>1 274-10<br>5 0-2<br>1 0<br>1 0<br>1 0<br>1 0<br>1 0<br>1 0<br>1 0<br>1 0  | Menths<br>95:-078<br>85:-954<br>85:-954<br>9:-<br>9:-<br>9:-<br>9:-<br>9:-<br>10:4<br>9:-<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:4<br>9:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:-<br>10:- | Months<br>9-2-9-1<br>9-2-9-1<br>9-2-9-1<br>10:5<br>9-2<br>9-2<br>9-2               | Yea<br>9:29<br>9:29<br>10-<br>10-<br>10- |

Treasury Bille [aoii]: one month  $9^{10}$  per cent; three months  $9^{1}$ , eer cert. Bank Selle (sell): one month  $9^{10}$ , eer cert; three months  $9^{1}$ , eer cert. Bille: Average ionder rate at diacount 9.2341 ce: cent. ECG3 Fraad Finanze Setome IV telerance date July 2 to August 5 jul; usivel: 10.005 eer cent. Local Authority and Finance Hauses Saven ders' net.ce, others seven days liked, finance Hauses Bast Rate 13 pet eent rom August 1 1956. Eank Daroes: Rates for sums at seven days' notice 435-4375 per cert. 1956. Eank Daroes: Rates for sums at seven days' notice 435-4375 per cert. Certificatos et Tax Deposi (Savines 5): Oseant filos 000 and over he'd urbar one month 10 eet cont; one-three menths 9% pet cent; three-six mattice filos.000 S- per cent from August 21. Oeposus held under Sories 5 3<sup>1</sup> per cent. Oppoerts withstawn for each 5<sup>1</sup> per cent.

# **£**WORLD VALUE OF THE POUND

The table below gives the latest available rate of exchange for the pound against various currencies on August 22, 1986. In some cases rate is nominal. Market rates are the average of buying and selling rates except where they are shown to be otherwise. In some cases market rates have been calculated from those of foreign currencies to which they are tied.

Abbreviations: (A) approximate rate, no direct quotation available; (F) free rate; (P) based on U.S. dullar particles and going similing-dollar rates; (T) tourist rate; (Bao) basic rate; (bg) baying rate; (Bik) bankers' rates; (cm) commercial rate; (ch) convertible rate; (n) financial rate; (cr(C) exchange settificate rate; (nc) non commercial rate; (nom) nominal; (e) afficial rate; (sg) selling rate; (c) controlled rate.

| COUNTRY                      | CURRENCY               | E STERLING       | COUNTRY             | CURRENCY           | VALUE OF     | COUNTRY                | CURRENCY          | VALUE OF        |
|------------------------------|------------------------|------------------|---------------------|--------------------|--------------|------------------------|-------------------|-----------------|
| Alabanistan                  | Afghani                | 99.00            | Ghara               | Cedi               | 134.91       | Panama                 | Balibao           | 1.4875          |
| ADuania                      | Leit                   | 10.08            | Gibraltar           | Gibraitar £        | 1.0          | Papua New Guinan       | Kirm              | 1.4593          |
| Ugeria                       | Dinar                  | 6.95             | Greece              | Drachena           | 200.625      |                        |                   | (358.08 (10)    |
| •                            | /French Franc          | 9.9575           | Orecidand           | Danish Krose       | 11,4800      | Paraguay               | Guarant           | 966.07 (7)      |
| ndorra                       | Scientish Peseta       | 198.7            | Grecoda             | E. Caribbean S     | 4.05         | Peru                   | Inti              | exe(A)20.80     |
| ngola                        | Kunarzz                | 44.963           | Guadaloupe          | Local Franc        | 9.95750      | Philipipes             | Philipine Peso    | 30.05           |
|                              | E. Caribbean S         | 4.05             | Guam                | U.S. S             | 1.4875       |                        | /£ Sterling       |                 |
| Sainaga                      | Austral                | 1.4560           | Guatemata           | Quetzal            | 14875        | Pitcairn Islands       | New Zoaland S     | 3.0748          |
| ruba                         | Florin                 | 2.6775           | Guinez              | Franc              | 510,17(19)   | Poland                 | Zloty             | 249.70          |
| sectralia                    | Australian S           | 2.4743           | Cuinea-Bissen       | Pesa               | 256.28       | Portugal               | Escudo            | 215.68          |
| ustria                       | Schilling              | 21.40            | Governa             | Girvanest S        | 5.9960       | Puerto Rico            | U.S. \$           | 1.4875          |
| 20765                        | Portuguese Escudo      | 215.68           |                     |                    |              |                        |                   |                 |
|                              | For any prose Excessor |                  | Halti               | Gourde             | 1.4375       | Qatar                  | Quiteri Ryal      | 5.4605          |
| shamas                       | Balanna S              | 1.4875           | Honduras            | Lempira            | 2.99         | Rennion Isle de fa     | French Franc      | 9.9575          |
|                              | Distar                 | 0.5655           | Hong Kong           | H.K. \$            | 11.6880      | Romania                | Leo               | (tom) 6.46      |
| atearic Islands              | Soundsh Peseta         | 198.7            | Hungary             | Foriat             | 65.238       |                        |                   | (NHC) 15.91     |
| angladeski                   | Taka                   | 44.60            |                     |                    |              | Reanda                 | Rwancia Franc     | 126.45          |
| arbados                      | Barbados S             | 2.99             | Iceland             | icelandic Kroze    | 60.766       |                        | E. Caribbean S    | 4.05            |
| Ser 03005                    |                        | ((cm) 62.85      | inda                | Indian Rupee       | 18.75        | St. Christopher        | St. Helena £      | 1.0             |
| elgiam                       | Beigian Franc          |                  | Indonesia           | Ruptah             | 1,675,560    |                        |                   |                 |
|                              |                        | (fal 63.60       | 1730                | Rial               | 113.60       | St Locia               | E. Caribbean \$   | 4.05            |
| elize                        | 85                     | 2.975            | Peril peril         | Iraqi Dimer        | 0.4587       | St. Pierre             | Local Franc       | 9.9575          |
| enia                         | C.F.A. Franc           | 497.88           | Irish Republic      | Punt               | 1.1070       | St. Vincent            | E. Caribbean \$   | 4.05            |
|                              | Bernudian \$           | 1.4875           | Israel              | Shekel             | 2.20         | Samoa American         | U.S. \$           | 1.4875          |
| netud                        | Ngultrum               | 18.75            | Italy               | Lina               | 2094.50      | San Marino             | Italian Lira      | 2,094.50        |
| tolivia                      | Bolivian Peso          | (a) 2061453.5    | Ivory Coast         | C.F.A. Franc       | 497.88       | São Tome & Principe    | Dobra             | 55.91           |
| CONSTRUCTION OF CONSTRUCTION | Pula                   | 3.0945           |                     | the state Balling  |              | Saudi Arabia           | Seudi Ryal        | 5.6163          |
| kazil                        | Crustado               | 20.595 (20)      | Jameica             | Jameican Dollar    | 7.5420(sg)   | Secegal                | C.F.A. Franc      | 497.88          |
| ritish Virgin Islands        | U.S. \$                | 1.4875           | Japan               | Yest               | 228.00       | Seycheltes             | S. Rapea          | 8.78            |
| kunel                        | Brunei \$              | 3,2180           | Jortiza             | Jordanian Digar    | 0.5128       | Sierra Leone           | Leane             | (c) 44.068      |
| kilgaria                     | Lev                    | 1.3830           | Kampuchez           | Riel               | N/A          | Singapore              | Singapore \$      | 3.2180          |
| unking Fase                  | C.F.A. Franc           | 497.88           |                     | Kenya Shilling     | 23.85        | Solomon Islands        | Sologian Is. \$   | 2.6605          |
| LITTLE                       | Kyat.                  | 10.8267          | Kenja               | Australian S       | 24743        | Somail Republic        | Somall Skilling   | 53.55<br>3.8868 |
|                              | Burned Franc           | 178.0            |                     | Woo                | 1.3983       | South Africa           | Rand              | 3.8868          |
|                              |                        |                  | Korea INorth)       | Weg                | 1319.00      | 50awa                  | Peseta            | 198.70          |
|                              | C.F.A. Franc           | 497.88,          |                     | Kuwalti Disa-      |              | Spanish ports la       |                   |                 |
|                              | Canadian \$            | 2.0675           | Kuwait              | KUWHICI DIMER      | 0.4355       | North Africa           | Pescta            | 198.70          |
| anary Islands                | Spanish Peseta         | 198.1            | Lans                | New Kip            | 52.0625      | Srt Lanka              | S.L. Rapee        | 42.10           |
| ape Verde Islands            | Cape V. Escudo         | 132.78           | Lebanod             | Lebanese £         | 64.5215      | Sudart Republic        | Sudan £           | 3.7168          |
| wman Islands                 | Cayman Isles. S        | 1.24             | Lesothe             | Maluti             | 3,8868       | Surinam                | S. Guilder        | 2.6552          |
| ent. Alr. Republic           | C.F.A. Franc           | 497.88           | Liberia             | Liberton S         | 14875        | Swaziland              | Lilamond          | 3.5868          |
| had had                      | C.F.A. Franc           | 497_88           | Libra               | Libyan Dinar       | 2.4711       | Sweden                 | Swedish Krona     | 10.2450         |
| the                          | Chilean Peso           | 289.09           | Liechteastein       | Swiss Franc        | 2.4550       | Switzerland            | Swith Franc       | 2,4550          |
| Snick                        | Renminbl Yuan          | 5.5443           |                     | Lucenboard Franc   | 62.85        |                        |                   | (LA) (T) 9.0    |
| sidnoid                      | Coi. Peso              | tF) 297.10       | conductor A         | CONTRACTOR & CLOSE |              | Syrta                  | Syrian £          | Licen) 5.8384   |
| omoro Islands                | C.F.A. Franc           | 497.88           | Mateo               | Patace             | 12.1772      |                        |                   |                 |
| Congo (Brazaville)           | C.F.A. Franc           | 497.88           | Madeira             | Portuguese Escudo  | 215.68       | Tabean                 | New Tahata S      | 55 71           |
| osta Rica                    | Colon                  | 101 94.59        | Mologasy Republic   | M.G. Franc         | 1102.50      | Tanzania               | Tan. ShtiBng      | 55.71<br>62.50  |
|                              | Cuban Peso             | 1.3027           | Malawi              | Kwacha             | 2.9650       | Thalland               | Baint.            | 38.70           |
| VOIDS                        | Cyprus £               | 0.7330           | Malaysia            | Ringgit            | 3,8995       | Togo Republic          | G.E.A. Franc      | 497.88          |
|                              |                        | (com) 8.95       | Maldive Islands     | Ruffyra            | 30.4125      | Tonge Islands          | Palanga           | 2.4143          |
| echostovakia                 | Kontesa                | (mic. 25.59)     | Mail Republic       | C.F.A. Franc       | 497.88       | Trinidad & Tobago      | Transdad & Tob. S | 5.5550          |
|                              | -                      | (T) 15.23        | Malta               | Makese £           | 0.5590       | Tunisia                | Tunislan Dinar    | 1.2847 (sg)     |
|                              | Danish Kroner          | 71,4900          | Martinique          | Local Franc        | 10.0600      | Torkey                 | Turkish Lica      | 1007.70         |
| jibosti Republic of          | Dilbouci Franc         | 260.0            | Meuritania          | Cuguiya            | 112.24       | Turks & Calcos Islands | U.S. \$           | 1.4875          |
|                              | E. Caribbaan S         | 4.05             | Mauritius           | Mauritian Rupee    | 19.525       | Turnin                 | Australian \$     | 2,4143          |
| CITING - Constanting         | Dominican Peso         | 41939 (7)        | Mexico              |                    | (IF) 1037.69 |                        | -                 | (F) 7,300.0     |
| ominican Republic            | pomencael Peso         |                  |                     | Mexican Peop       | (E) 1007.59  | Uganda                 | Uganda Shillog    | (2,000.0 14)    |
|                              |                        | (In) 245.80 (18) | Miqueion            | Local Franc        | 9.95750      | United States          | U.S. S            | 1.4875          |
| caador                       | Sucre                  | LIF) 247.08      | Monaco              | French Franc       | 9.9575       |                        | Uruguay Peso      | 236.30          |
|                              |                        | 110413           | Mongolia            | Tucrik             | 4,9913       | United Arab Emirates   | U.A.E. Dirthean   | 5,4985          |
| 0/pt                         | Egyptian C             | 117 200          | Monserrat           | E. Caribbeau \$    | 4.05         | US\$8                  | Rouble            | 1.0089          |
| Salvador                     | Colos                  | 7.46             | Morocco             | Dirham             | 23.05 (sp)   |                        |                   |                 |
| matorial Guisea              | C.F.A. Franc           | 497.88           | Mozambique          | Metical            | (A) 59.96    | Vanuagu                | Vzta              | 148.25          |
| thiooid                      | Ethiopian Birr         | 3.105            |                     |                    |              | Yatican                | Italian Lira      | 2,094.50        |
|                              |                        |                  | Namibia             | S.A. Rand          | 3.8968       |                        |                   | (14) 6.40       |
| aikland Islands              | Falidand Isles E       | 10               | Nauru Islands       | Australian \$      | 2.4743       | Vanezuela              | Boliver           | (5) 11.16       |
| aree islands                 | Danish Kroner          | 11.4800          | Nepal               | Nepalese Ruppe     | 30.76        | 1                      | _                 | 160 29.39       |
| ly Islands                   | FIF 5                  | 17333            | Netherlands         | Guilder            | 3.4300       | Vietnam                | Doog              | (oi 11.607(1)   |
| mised                        | Maride                 | 7.3118           | Netherland Antilles | Antillian Guilder  | 2.6775       | Virgin Islands U.S     | U.S. \$           | 1.4875          |
| rance                        | Frant                  | 9.9575           | New Zealand         | N.Z. S             | 3.0748       | Western Samoa          | Tata              | (A) 3.34c0      |
| rench C'ty in Africa         | C.F.A. Franc           | 497.53           | Nicaraçua           | Cordoba            | to) N/A      |                        |                   |                 |
| rench Guiana                 | Local Franc            | 9.9575           | Niger Republik      | C.F.A. Franc       | 497.88       | Yemen (North)          | Ryal              | (A) 20.4965     |
| French Pacific Islands .     | C.F.P. Franc           | 175.0            | Nigern              | Naira              | 1.969641     | Yennes (South)         | S. Yemen Dinar    | 0.5147          |
|                              | C.F.A. Franc           | 497.68           | Norway              | Norwegian Krone    | 10.8500      | Yugoslavia             | New Y. Dinar      | 597.57          |
| antia aldme.                 | Datasi                 | 10.80            | Orren Sultanate of  | Rial Omani         | 0.5769       | Zaire Republic         | Zaire             | 89.2782         |
| ermany (East)                | Ostmark                | 5.0400           | 1                   |                    | 4.3107       | Zambla                 | Kwincha           | 8.603           |
|                              |                        |                  |                     |                    |              |                        |                   |                 |
| Germany (West)               | Deutsche Mark          | 3.0400           | Pakistan            | Pakistan Rusee     | 25.05        |                        | Zimbabwe S        | 2.5325          |

Plane is the transfer market loomrolled). ## Now one official rate. (1) Essential goods. (2) Preferential rate for priority imports such as foodstoffs. (4) Preferential rate for boury imports remittances of movey abroad and forsign bravel. (7) Parallel rate. (9) Earlient rate, (20) Free rate for boury imports, remittances of movey abroad and forsign bravel. (7) Parallel rate. (9) Earlient rate, (20) Free rate for boury imports, remittances of movey abroad and forsign bravel. (7) Parallel rate. (9) Earlient rate, (20) Free rate for boury imports, remittances of movey abroad and forsign bravel. (7) Parallel rate. (9) Earlient rate, (20) Free rate for bours, (14) Perti-1, 100 ables, (20) Free rate for ables of the about the state of the st

# **Botswana RST** $\mathfrak{m}$ \_imited

Incorporated in the Republic of Botswana

### **INTERIM REPORT**

### Results of the company and its subsidiaries for the six months ended June 30,

| 1700   |                   |                |                       |
|--|-------------------|----------------|-----------------------|
|  | Half-yea          | r ended        | Year ended            |
|  | Jun               |                | Dec. 31               |
| Production and Sales (Tonnes)  | 1986              | 1985           | 1985                  |
| Production at mine-metals contained in matte   | 10.100            | 0.005          | 10 545                |
| -Nickel  | 10,173            | 9,905          | 19,565                |
| —Copper<br>—Cobalt   | 11,212<br>89      | 11,055<br>127  | 21,692<br>222         |
| Sales  | 69                | 161            | 246                   |
| -Nickel  | 8,263             | 9.157          | 17.324                |
| -Copper  | 9.006             | 10.308         | 19.397                |
| -Cobalt  | 76                | 115            | 190                   |
|  |                   |                |                       |
|  | Half-yea          |                | Year ended            |
| Consolidated Income Statement  | June<br>1986      | e 30<br>1985   | Dec. 31<br>1985       |
| (Unaudited)  | P'000's           | 1985<br>P000's | P000's                |
| Sales  | 54,106            | 60.141         | 120.134               |
| 54165  |                   |                |                       |
| Operating profit   | 15,688            | 23,188         | 45,722                |
| Interest paid  | (3,806)           | (3,943)        | (9,060)               |
| Realised currency exchange profits/(losses)  | 7,219             | (2,380)        | (10,447)              |
| Wardt betwee defensed interest defensed comply and                                       | _                 |                |                       |
| Profit before deferred interest, deferred royalty and<br>unrealised exchange adjustments | 19,101            | 16.865         | 26.215                |
| Interest accrued but deferred for payment  | (75,599)          | (68.260)       | (144.765)             |
| Royalty accrued but deferred for payment   | (3,033)           | (3,604)        | (8,540)               |
| Unrealised currency exchange profits/(losses)  | 15,096            | (115,046)      | (270, 866)            |
| · · · ·  | (44.405)          | (100 045)      | (DOE DEC)             |
| Loss before extraordinary item<br>Extraordinary item                                     | (44,425)          | (170,045)      | (395,956)<br>(63,358) |
| Extraordinary nem  |                   |                | (00,000)              |
| Net loss attributable to the shareholders of Botswana                                    |                   |                |                       |
| RST Limited  | (44,425)          | (170,045)      | (459,314)             |
| Accumulated deficit at beginning of the year   | (1,181,412)       | (732,098)      | (722,098)             |
| Accumulated deficit  | (1,225,837)       | (892,143)      | (1,181,412)           |
| Accumulated denet  | (1,000,007)       | (052,130)      | (1,101,412)           |
| Net loss attributable to the sbarebolders of Botswana                                    |                   |                |                       |
| RST Limited per ordinary share:  |                   |                |                       |
| Pula   | <b>P2.47</b>      | <b>P9.46</b>   | P25.55                |
| Charlin a  | £0.78             | £4.10          |                       |
| Sterling   | 20.78             | ±4.10          | £8.40                 |
| U.S. Dollars   | \$1.20            | \$5.32         | \$12.10               |
|  |                   |                |                       |
| Exchange rates used above: P1=   | £0.3170           | £0.4335        | £0.3290               |
| P1=  | \$0.4860          | \$0.5625       | \$0.4735              |
|  | Ttolf mean        | to de d        | Vernandad             |
|  | Half-year<br>June |                | Year ended<br>Dec. 31 |
|  | 1986              | 1985           | 1985                  |
| Capital Expenditure and Commitments  | P000's            | P000's         | P000's                |
| Capital expenditure  | 2,291             | 2,040          | 4,031                 |
| Capital commitments  | 3,079             | 1,164          | 691                   |
| Capital expedditure approved by the directors but  |                   |                |                       |
| not committed  | 2,939             | 1,280          | 745                   |
|  |                   |                |                       |

### **Review of Operations**

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Operations at the Phikwe and Selebi mines, and at the treatment plants continue to be and at the treatment plants continue to be satisfactory. Mine costs per tonne of metal contained in matte increased by 4.0% above the level of the last six months of 1985 and production of contained metal increased by 5.3% from 20,392 tonnes to 21,474 tonnes. During the period 19,499 tonnes of metal contained in matte were shipped to the Falconbridge refinery at Kristiansand and delivered to refiners in Sonthern Africa.

million, U.S.\$11.1 million was paid to AMAX Inc in respect of the Amax Nickel, Inc (ANI) indemnity amount and P0.4 million was paid to Government in repert of the minimum royalty for the six months to December 31, 1985, Available cash was insuf-ficient to pay the full amount of the ANI indemnity amount falling due, emergency funding of U.S.S14.1 million remained outfunding of U.S.514.1 million remained out-standing at June 30, 1986 and no senior debt obligations were discharged or 1986 royalty payments made. The principal shareholders increased their loans to the group by P1.5 million to finance loan repayment obliga-tions, interest and expenses of the company during the period.

# **CONSTRUCTION CONTRACTS**

THE CRUMBLES HARBOUR

VILLAGE PLAN

# £200m Eastbourne development plan

BY JOAN GRAY, CONSTRUCTION CORRESPONDENT

Tarmac is negotiating for a 200m project to develop a new harbour, village, marina, shopping centre and business park in the south coast resort of Eastbourn

of Eastbourne. The planned development— known as the Crumbles Har-bour Village—will be on 400 acres of beach, gravel and sand dunes nt the eastern end of the promenade towards Pevensey Bay. The site is owned by fae Duke of Devonshire; the Duchess of Devonshire—one of the Mitford sister—is a

of the Mitford sisters—is a non-executive director of

The partners in the develop-ment, the Chaisworth Trustees and Enterprise Zone Develop-ments, are now trying to raise finance for the project. They are hoping to appeal to an international market, describing the village as "blending the charms of a

th Tst

# It will, they hope, transform Eastbourne into the Riviera of Britain, and offer its discriminating residents the chance to walk home from work for an evening sailing, "followed by a meal in n fine restaurant and a mounit stroll along the quay." Tho scheme will have an outer tidal harbour with capacity for 400 vessels— yachts and the local fishing

tradicional northern European

town such as Ronfleur with

the excitement of Port Grimand and the commercial viability of harbourside Balti-

more USA."

according to the developers according to the developers prospectus—leading to an inner marina with moorings for a further 500 vessels. There will also be a cobbled quayside and 2,000 homes de-signed to echo the character of a fishing village.

### **FINANCIAL DIARY**

The following is a record of the principal business and financial engagements during the week. The board meetings are mainly for the purpose of considering dividends and official indications are not always available whether dividends concerned are interims or finals. The sub-divisions shown below are based mainly on last year's timetable. nainly on last year's timetable.

Standard Bank imp and Export Fin 1992 E128.59 Eelevision South 3p FRIDAY AUGUST 29 COMPANY METINGS-AIM, Grazt Zattern Hotel, Liverpool Street, EC, 12.00 Anaz, Information Antone, Circle Way Comen de Groot, Grast Eastern Hotel, Liverpool Street, EC, 12.00 Davenpoort Knibyrean, Allea House, Newarke Street, Leccester, 11.30 GEC, Dorchester, Park Lane, W, 12.00 Leigh Interests, Highbury, 4, Yew Tree Read, Mossder, Shrmingham, 12.00 Stormgerd, Goring Hotel, Beeston Place, SW, 11.00 EDTINGS-Footh Cammel) Down Dynamics 75 2009311 8 1406LA 7990-94 9 47485 TODAY COMPANY MEETINGS-12.00 Tst. 65, Buckingham Gate. 2.45 41-44, Great Queen Str WC. WC. BOARD MIETINGS urgh Oil and Gas (LAICASTAT) DEND & INTEREST PAYMENTS 2p Colloids 1.8p ; Inv Tst 0.8p Alien US Dollar Inc Fd Ptp R New York Fits indiana Antonia and Antonia antoni NV Ged Fitty Rate Nt Tenby Inds Wessance DIVIDEND & INTEREST PAYMENTS---Anglo Utd Dev Corp 0.5p. Do (Canadian Domino Briding Sciences 0.95p First National Finance Corp 2.25p First National Finance Corp 2.25p First National Finance Corp 2.25p Net 1896 S132.55 Marrity Intel Tst 1.5c Sarasoci Tech 2001 Sec Transvery TotoMesicow COMPANY MEETINGS--Allied Collode, Cleckhaeton Road, Low Moor, Brathord, 12.00 Hoitas, Windoor House, Southmoor Road, Wythenahawe, Manchester, 9.30 Swan Uohn and Sons, New Mart Road, Gorgle, Editlangth, 3.30 BOARD MEETINGS--Kinads Fondhake Foods 1.2.5 Jons. 1.159 Franchake Foods 1.2.5 Jons. 1.159 Great Western Financial Corp 30dts Greathan House 3.4.5p Hambro Currency Distributor Fd Phy Red Pf (Stat) Sto. Ptg Red Pf (Cen) 735.5, Health Circ Services D.759 Hillingworth Morris 2.2.5p Intel Lettore Bo-rey Red Pf 640 Fd Pf 840 Pf 840 Pf 840 Pf 30e Invicts Gilt Income Fd Pf Red Pf 30e Invicts Gilt Income Fd Pf Red Pf 30e Invicts Gilt Growth Fd Ptg Red Pf 1.75p Ogliby Group 20cts Platon Int 2.159 Promapring 1.5p Strength 2.159 Promapring 1.5p Strength 2.159 BOARD MEETING-



OUTER HARBOUR

NNER HARBOUR

HARBOURSIDE HOUSIN MATERSIDE HOUSING

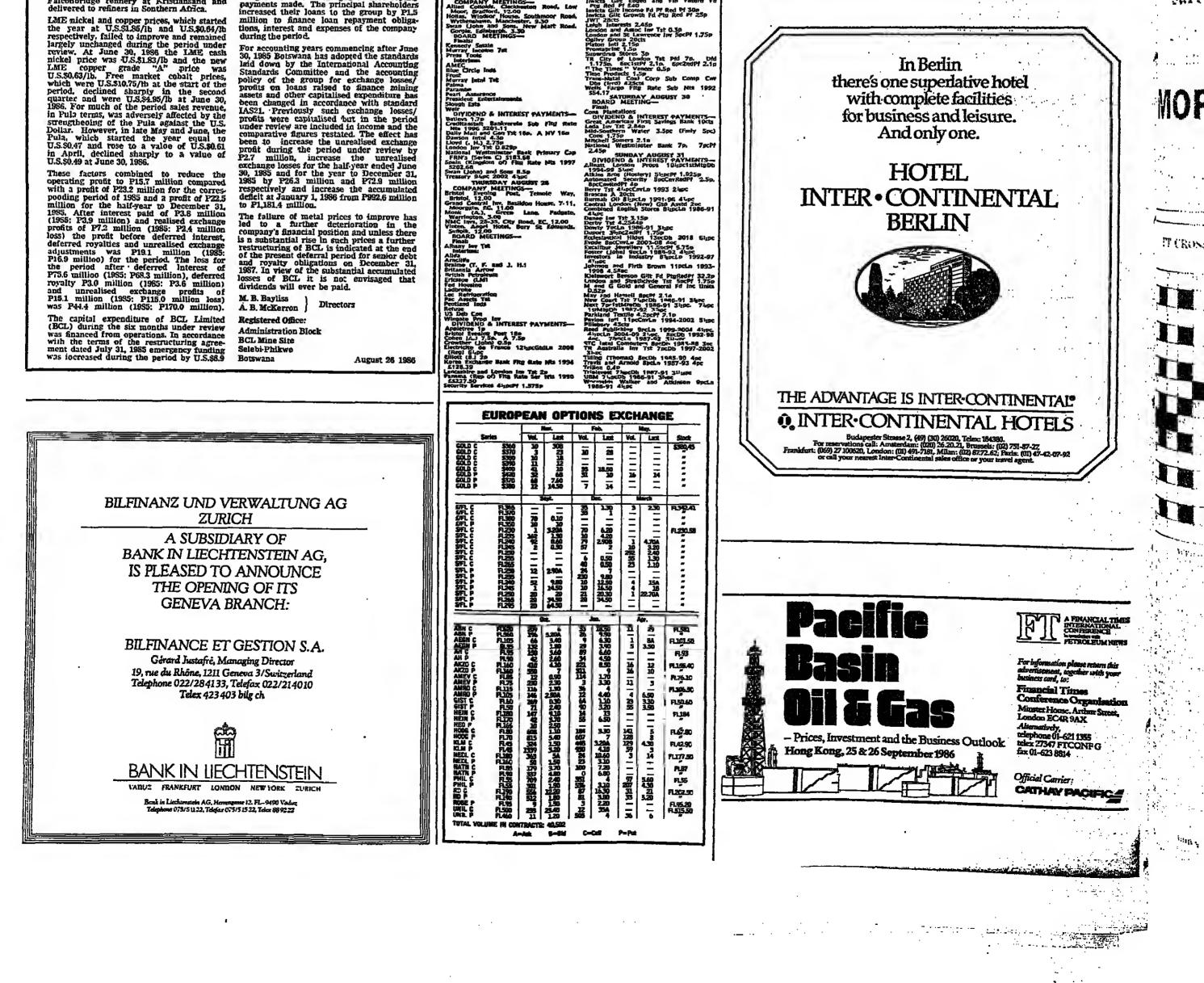
MARINE FACILITIES

A Month & Company plc. PO. Borris, mington, Chesking WAI 4/8, Set 0725 4.4 Shepherd wins orders worth £13m SHEPHERD CONSTRUCTION

While the Old Balley is closed for its six-week summer recess, TROLLOPE & COLLS will be busy re-roofing two courts and refurbishing Court. No. 1, and making major alterations to the basement. The Court is to be given a complete facelift, includ-ing the restoration and polishing of the oak paneling and benches, the re-upholstering of the furni-ture, and re-carpeting through-out. The roof is to be stripped of its existing slate tiles and timber battoning, and reciad in alate. The £500,000 contract is being carried out for the City of London Corporation.

Play

safe

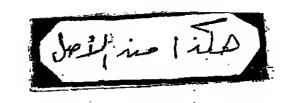


ake constructive ideas and build on them Monk man be an and and

Trust Monk to

Financial Times Tuesday August 26 1986

SHEFHERD CONSTRUCTION has secured contracts worth over firsm. The contracts worth over firsm. The contracts include major projects for Lewis's, British flome Stores, ICI; and St John's College, Cambridge, In Stoke-on-Trent, Lincoln, Macches field and Cambridge respectively. The largest, worth £3.9m, is for the second phase of the enter-sion and refurbishment of the Lewis's department store in Hanley, Stock-on-Trent, Shep-herd'o York office has begun site work on refurbishment and extending the Lincoln BHS store under a £2.6m, 32 weak, contract for completion in April 1987. The latest of a number of coo-tracts undertakes at ICI pharmaceuticals divison's Alder-ley Park site is worth over £25m. It involves construction of the superstructure of a 'wo-storey laboratory, for completion in April 1987. A further research orientated project, this time for St John's College, Cambridge, also has a contract value over £2m. Called the St John's Innovation Centre, it will be a two-storey research and develop-ment building in Cowley Road, Cambridge.



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|----------|--|--|---|--|--|
|          | Financial Times Tuesday Augus<br>LONDON RECENT ISSU<br>EQUITIES  | UES AUTHORISED<br>UNIT TRUSTS  | FT UNIT TRUST INFORMA   |  | 21<br>Scottisk Unit Managers<br>2° Garton Sc. Ebrowerk<br>Part-Franzis   |
|          | op         Date         High         Low         Price         Price           160         F.P.         3/9         173         165         Acatos 6. Hutcheson 50p.         173            9115         F.P.         228         157         128         Hannia See Hannes 10p.         137            9235         F.P.         228         127         128         Hannia See Hannes 10p.         137            9235         F.P.         228         127         128         Hannis Continue Eco 50.         107            6 N F.P.         85         71         168         498.86 Design Gro 50         70          107   | Net.         Trans-Genes.         P.E.         Abber Umit Tst.         Minger.         (m)           Din.         Cov/aV/reis Raito         B01 Holderwarf Ra.         Dinamanasti         0145 7177373           Bit.         Scov/aV/reis Raito         Gint & Free Int.         118.1         194.9         -0.2         9.61           Bit.         Scov/aV/reis Raito         Gint & Free Int.         118.1         194.9         -0.2         9.61           RL.53:         Scov/aV/reis Raito         Gint & Free Int.         118.1         194.9         -0.2         9.61           RL.53:         Scov/a 115.9         Hot Scov/aver Int.         105.7         201.94         +0.8         40.8           RL.53:         Scov/aver Int.         Exampt Scov/aver Int.         105.7         201.94         +0.8         40.8           RL.53:         Scov/aver Int.         Exampt Scov/aver Int.         105.9         -1.2         40.9         -1.5         500         10.2         -0.7         1.5         10.0         -0.1         2.0         -0.0         2.0         1.2         2.0         -0.0         2.0         -0.0         2.0         1.2         2.0         -0.0         2.0         -0.0         2.0         -0.0         2.0   | Source         123.4 <t< td=""><td>spann Garr, London Swill, DJ #22 6115         PO By-1 A Non-Lich NR, 3NG           via         - h049         1117         -0.57         0.6         Cross 1:1 Fund</td><td>DM35 622200         DM35 622200           1 237.31         = R.71         375           1 237.31         = D.81         375           1 237.31         = D.81         375           1 237.31         = D.31         375           1 237.31         = D.31         376           1 237.31         = D.31         376           1 237.31         = D.31         376           1 237.31         = D.31         2.54           90.46         = D.21         177           99.46         = D.21         177           99.46         = D.21         177           99.46         = D.21         177           99.46         = D.133         171           99.47         = D.132         171           99.4         = D.132         172           99.7&lt;</td></t<>  | spann Garr, London Swill, DJ #22 6115         PO By-1 A Non-Lich NR, 3NG           via         - h049         1117         -0.57         0.6         Cross 1:1 Fund  | DM35 622200         DM35 622200           1 237.31         = R.71         375           1 237.31         = D.81         375           1 237.31         = D.81         375           1 237.31         = D.31         375           1 237.31         = D.31         376           1 237.31         = D.31         376           1 237.31         = D.31         376           1 237.31         = D.31         2.54           90.46         = D.21         177           99.46         = D.21         177           99.46         = D.21         177           99.46         = D.21         177           99.46         = D.133         171           99.47         = D.132         171           99.4         = D.132         172           99.7<   |
|          | 492         F P         1569         165         156         Harrson Inds. 100         167           492         F P         2878         95         87         Hills Ergenom 100         92           500         F P.         156         2512         Hills Ergenom 100         92           -         F P.         2378         2312         Hills Ergenom 100         92           -         F P.         2379         E339         E36         JF Pacific Warrast SA.         239  | d53'22         4.5         30.7         ABled Duphar Unit         Trusts PLC (a)(a)           g50(27)         4.3         12.2         Alled Duphar Unit         Trusts PLC (a)(a)           R20(31)         3.1         12.7         10793175311         Ocaling (0793) e10396           R0.5         2.8         3.1         12.6         Entempt Trusts         132.1         12.4           R3.13         3.0         4.5         9.3         Bataset Trusts         132.1         1.0         31.2           R3.13         3.0         4.5         9.3         Bataset Trusts         1.0         31.2         1.0         31.2           R3.13         3.0         4.5         9.3         Bataset Trusts         1.03.2         1.0         32.6           R3.13         3.0         4.5         9.3         Bataset Trusts         1.03.4         1.3         2.46         1.1         3.69         -1.0         3.16           R40.8         1.1         2.0         4.0         -1.0         3.16         4.0         -1.0         3.16         4.0         -1.0         4.0         -1.0         4.0         -1.0         4.0         4.0         -1.0         4.0         -0.0         4.0   | Description Legis 21, -2130         322.1, -300         307         5 Registration Legistration Real, Benetaeval         0277 227300         Sould Doi 10           Lacom Journ Legistration Legistration Registration Legistration Registration Legistration Registration Registrate Registrea Registration Registration Registration Registrea Reg  | Bit         Clip 5         123         Particul model (Unit, Sci )         523           Barter         Clip 0         1870         420         1870         420           Barter         Clip 0         1870         420         100         100         100           Barter         Clip 0         100         100         B00         100 <td>517         214         Emergin income         213         62.54         42.54</td>  | 517         214         Emergin income         213         62.54         42.54   |
| a-<br>-, | FIXED INTEREST STOCKS           Image         Annownt         Latest         1986         Stock           Price         Paid         Research         1986         Stock           C         up         Date         High         Low         Stock         Date           FP         2310         105         1355         Arthority Ints. Sta Con. Use. Lo. 200         Diff.           990-Loo         F.P.         2410         1001/2         990/2         Elect & Gron. Intr. 104/5         Det. 2021           105.5223         F.P.         21/8         1005/2         90/2         Low         Scottic Warrant S. A. Pref           FP.         1005/2         90/2         Low         Scottic Warrant S. A. Pref         Scottic Warrant S. A. Pref           FP.         1005/2         90/2         Low         Scottic Warrant S. A. Pref         Scottic Warrant S. A. Pref           FP.         100/2         90/2         Low         Scottic Warrant S. A. Sc  | Closing         + cr         - cr   | Cannon Find Managers L1d (2)         Description         Other Statistics         Other Statistics           Common Find Managers L1d (2)         Description         Statistics         Envirtig           Common Find Managers L1d (2)         Display for Other Statistics         Other Statistics         Envirtig           Common Find Managers L1d (2)         Display for Other Statistics         Other Statistics         Other Statistics         Envirtig           Income         The Statistics         Display for Other Statistics         Display for Other Statistics         Display for Other Statistics         Display for Other Statistics           Income         The Statistics         Display for Other Statistics           For East         The Statistics         Display for Other Statistics         Display for Other Statistics         Display for Other Statistics         Display for Other Statistics           For East         The Statistics         Display for Other Statistics           For East         The Statistics         Display for Other Statistics         Display for Other Statistics         Display for Other Statistics         Display f   | Advisibility         220         230         Perpictual Unit I rest. Margin           met  | CODI   |
| 4        | H         NH         2609         Spon         11 goon         Rea Bros. Grapp 8.4% Gas. Con. Pril           H         F.P.         30.9         1059         1009         Scantaruk 5.7% Gas. Con. Red. Pril           H         H         F.P.         11.49         305         95         Utd Leanny 91/% Cm. Sab Use La "           H         F.P.         11.49         105         95         Utd Leanny 91/% Cm. Sab Use La "           H         F.P.         -         102         101         VSEL Cost 11% Use. La 1996           H         F.P.         -         102         101         VSEL Cost 11% Use. La 1996           Attributer         F.P.         -         102         101         VSEL Cost 11% Use. La 1996           Attributer         F.P.         -         102         101         VSEL Cost 11% Use. La 1996           Attributer         -         102         107         Weight Cms Cs. Cm. Rd. Pril 1999 100           Attributer         -         102         107         Weight Cms Cs. Cm. Rd. Pril 1999 100  | 21ggpm         Consist Growth Gr  | Charrings Charrings NR Fundt: Elobal Assel Management Id<br>33 Ang William Street, EC4<br>Elobal Assel Management Id<br>01-039 6677 EAM Stretty Management Id<br>01-039 6677 EAM Stretty Management Id<br>01-039 667 EAM Stretty Management Id<br>00-000 667 72 120 120 120 120 120 120 120 120 120 12  | Annu         Trial         Trial <tht< td=""><td>128BC         01.749 0111         North Americal</td></tht<>  | 128BC         01.749 0111         North Americal   |
| м.<br>   | 190         Nu   | Zpra         Archway Unit Tst. Mgs. Lttf[a](c)           Spra  | General Europ   | Line         Line <thline< th="">         Line         Line         <thl< td=""><td>a (G) ZDL         01/a18 0377         Managet Hards Fried Inc. 51.5         54.6()         50.6()         50.6()         10.6()</td></thl<></thline<> | a (G) ZDL         01/a18 0377         Managet Hards Fried Inc. 51.5         54.6()         50.6()         50.6()         10.6()  |
|          | R Forecast annualised dividend, cover and p/e ratio based on prospectus or other<br>Forma Figures : Indicated dividends; cover relates to previous dividend; p/e ra<br>etanings, a Forecast, or estimated annualised dividend rate, cover based on<br>C Issued by tender. If Offered bolders of ordinary chares as a "hights." If I boro<br>of capitalisation, b Anaciog prize, bp Reintroduced. 19 Issued in connection with<br>takerover. A Allolment price, b Unlisted securities market, ft Official Lan<br>marrants entitlement.  | Official resultants.         W PTO         Accom Vars.         213.5         222.0         1.12           Do based on fatters annuals         Accom Vars.         213.5         1.23         1.23           previous year's examings.         Accom Vars.         1.45         1.54         1.51           accom Vars.   | Income D Grown 1's  | Mil         237         412         0.32         NLM. Rothschild Asset           Mil         201         0.21         0.21         NLM. Rothschild Asset           Mil         201         0.22         0.21         NLM. Rothschild Asset           Mil         201         0.22         0.21         NLM. Rothschild Asset           Mil         202         0.23         St Swriter's Lare, London ECC           Mil         203         0.27         Mc America Lind.         2051           Mil         207         Mc America Lind.         2051         2051           Mil         201         0.77         Mc America Lind.         2051           Mil         202         0.77         Mc America Lind.         2051           Mil         202         0.77         Mc America Lind.         2051           Mil         202         0.77         Mc America Lind.         2051  | Open state         State         Disk constraint         State         State </td  |
|          | Safe<br>Look for<br>the initials   | Sciary &         Bartic Trust Managers Ltd         D1-491 0795           You and the second with the second withe second with the second wi  | Burgers of construction         State         Construction         State         Construction         Construction <td>Avg.         Avg.         <th< td=""><td>1425     +01     140     2410     140     2410     140       1425     +19     0.3     Small Gri Fundi Neti Neui 0.21     00.21     00.21       1445     140     0.55     Target Trust Magrs, Ltd (a)(g)     150     01.21       146     140     140     140     140     100       147     142     140     140     140       148     140     140     140     100       159     142     140     140     100       150     142     140     140     100       140     142     140     140     100       140     142     140     140     140       140     142     140     110     110       141     142     141     142     140       142     141     141     142     141       141     141     141     141     141       141     141     141     141     141       141     141     141     141     141       141     141     141     141     141       142     141     141     141     141       142     141     141     141</td></th<></td> | Avg.         Avg. <th< td=""><td>1425     +01     140     2410     140     2410     140       1425     +19     0.3     Small Gri Fundi Neti Neui 0.21     00.21     00.21       1445     140     0.55     Target Trust Magrs, Ltd (a)(g)     150     01.21       146     140     140     140     140     100       147     142     140     140     140       148     140     140     140     100       159     142     140     140     100       150     142     140     140     100       140     142     140     140     100       140     142     140     140     140       140     142     140     110     110       141     142     141     142     140       142     141     141     142     141       141     141     141     141     141       141     141     141     141     141       141     141     141     141     141       141     141     141     141     141       142     141     141     141     141       142     141     141     141</td></th<>  | 1425     +01     140     2410     140     2410     140       1425     +19     0.3     Small Gri Fundi Neti Neui 0.21     00.21     00.21       1445     140     0.55     Target Trust Magrs, Ltd (a)(g)     150     01.21       146     140     140     140     140     100       147     142     140     140     140       148     140     140     140     100       159     142     140     140     100       150     142     140     140     100       140     142     140     140     100       140     142     140     140     140       140     142     140     110     110       141     142     141     142     140       142     141     141     142     141       141     141     141     141     141       141     141     141     141     141       141     141     141     141     141       141     141     141     141     141       142     141     141     141     141       142     141     141     141  |
|          | The Financial Intends to public Stranged addressed envelope to:<br>The National Newspaper  | at 1 mmos         Do Corr Cont. Inc.         17.8         78.5         0.00         0.00           th a Survey on<br>UIPMENT         Do Corr Cont. Inc.         17.8         78.5         0.00         0.00           UIPMENT         Do Corr Cont. Inc.         17.8         78.5         0.00         0.00           Do Corr Cont. Inc.         17.9         78.5         0.00         0.01         0.01           UIPMENT         Do Corr Cont. Inc.         17.9         78.5         0.00         0.01         5.7           Do Corr Cont. Inc.         17.9         77.9         0.02         10.0         5.7         10.0         5.7         10.0         5.7         10.0   | Softwin Consent Tra115       119 GT       2000       Dereminant Extern Tra_153       50 or main for ma  | Column         Column<  | PA B      140     Particle Ce for numerical (20,7)     1/26     -27     1/20       Particle Ce for numerical (20,7)     1/26     1/26     -27     1/20       Particle Ce for numerical (20,7)     1/26     1/26     -27     1/20       Particle Ce for numerical (20,7)     1/26     1/26     -27     1/20       Particle Ce for numerical (20,7)     1/26     1/26     1/26     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     -0.27     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     -0.27     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     -0.27     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     -0.27     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     1/26     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     1/26     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     1/26     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     1/26     1/26       Particle Ce for numerical (20,1)     Particle Ce for numerical (20,1)     1/26     1/26       Particle Ce for numerice (20,1) <t< td=""></t<>  |
|          | Mail Order Protection Scheme<br>16 Tooks Court, London EC4 1LB<br>FT CROSSWORD PUZZLE Ne<br>ORIGAMI  | Baring Fund Managers Ltd<br>P0 6x155, Beckman, Ken 883 470         OL-559 9002           Acrast U:   | FM 5 and Los C4'02''     311     342     - C4     - B Ferrina and Essee     0277' 21728     Michael Mars       Ambanya Laramon, Bigo 1     155,2'     - 251     WK Fonds.     105,0'''     105,0'''''''''''''''''''''''''''''''''''   | Arrow Bit Worthing         01.4238211         Royal Trust Can, Fd. Mi           11.423821         20.423         201.521         Royal Trust Can, Fd. Mi           11.42382         20.423         201.521         Royal Trust Can, Fd. Mi           12.421         201.521         POIL         201.521         Royal Trust Can, Fd. Mi           12.421         201.511         POIL         201.521         Royal Trust Can, Fd. Mi         201.521           13.421         201.511         POIL         201.511         POIL         201.511         POIL         201.511           14.511         201.511         201.511         POIL         201.511         POIL  | Int Construction         Packs Technology To         L533         57.2         w01         0.68           Mit 6LD         071-236 6044         Un & Schn Fd  |
|          | 5     10       5     11       11     13       12     13       13     14       15     16  | Gen unsul         198 or<br>198 or<br>high Via         198 or<br>199 | ET response fund  | There is a state of the second seco  | 111         113         113         113         113           113         113         113         113         113         113         113           113  |
|          | 20     20     21     21       22     23     23     24     24       25     26     26     26     26       28     28     27     29  | 18         19         Unt & Extreme in Call 10         100         110           Bishopsgate Progressive Migott, Co.         155.5   | Signorger Hug Comparison St. Commerce 10203 553:31       Jacan L.       Jacan   | Zores         22.6         25.7         4.8         15.7         7.7         700           constr         173.3         140         0.1         0.1         15.7   | BC.01         -0.6         15.3           101.31         4.26         Tyndail Managers Ltd(a)(b)(c)           97.7         -0.2         201         BC:snyme Post, BC:sn |
|          | 1 You French kissers show up<br>well in a bed (6)<br>4 Put lid of fashioo back with<br>bloomer (8)<br>9 Direction to a little turnip –<br>6 Variety of<br>6 Variety of   | Do Art         122         122         123         144           Do Art         130         143         144           Do Art         130         143         144           Do Art         130         143         144           Working with         100         128         144           Bob Art         100         128         144           Working with         100         128         128           Bob Art         127         100         128           Britamia Unit Trust Managers Lid. (a)(X)(9)         1478         148           In Seguint Can Trust Managers Lid. (a)(X)(9)         101         138           In Seguint Can Trust Managers Lid. (a)(21         131         131           Besera Funds Common Trust Managers Lid. (a)(21         131         131           Besera  | 100 works in for  | District         Construction  | 33.21       +0.4       199       (Accent UP: 3'  |
|          | <ul> <li>10 Face split by left to chin with practice in the garden (8)</li> <li>12 Has crop of restless footballers included (8)</li> <li>13 Alyssum cultivation pointless in hospital (6)</li> <li>14 Constant of the border (7)</li> <li>20 Ran into clipped bush (7)</li> <li>21 Food in the King's head following for a formation of the second busines of t</li></ul> | Community Start,   | Improve La (1)       IDS1       IDS2       IDS1       IDS2       IDS1       IDS2       IDS2<   | Serie         101 3         321 4  | Image: Ltd         UP House, Caste 5: Saletary SPJ 35H         0722 736242           IAX         01-823 5776-5777         Work Exerctant - 116.7         1194 109         -01         -           29 6m         0.4         100         Work Exerctant - 116.7         128 07         -0.4         -           29 6m         0.4         100         Work Exerctant - 116.7         128 07         -0.4         -           29 6m         -0.4         100         Unit Trust Account & Mignal Ltd         -         -         -           31 5t         +0.1         100         20, Contait Areme Longon, EC20 7PA 01-528 5064.         -  |
|          | <ul> <li>25 Make trips around nospital to a gattery to a gattery and look for insects (6)</li> <li>26 Plant right in peat to a considered to dream (6)</li> <li>28 Plum cases—a can of metal (8)</li> <li>29 Unt hranch meeting with American hetore a passage is covered (6)</li> <li>30 Garden produce is shared around (8)</li> <li>31 The colour of a Negro? (6)</li> </ul>  | n down prune<br>ip 161 bit har from 500 bit - 0, 1570<br>ip 161 bit har from 500 bit - 0, 2578<br>clothing stuck from 500 bit - 0, 1570<br>relation from 500 bit - 0, 1570<br>bit har from 500 bit - 0, 1570<br>relation from 500 bit - 0, 1570<br>relation from 500 bit - 0, 1570<br>bit har from 500 bit - 0   | Alex alexandro 2007 and 20 ar 100 and 200 and   |  | HS         Grant matrix         185 h         200 f         3 12           101 235 2011         Harmonia         20.9 T         201 f         3 12           101 235 2011         Harmonia         20.9 T         201 f         3 12           101 235 2011         Harmonia         20.9 T         201 f         201 f           101 55 2011         Harmonia         20.9 T         201 f         201 f           205 7         -201 001         Harmonia         101 f         201 f         201 f           205 7         -201 001         Harmonia         101 f         101 f         201 f         201 f           101 11         Harmonia         101 f         101 f         101 f         201 f         201 f         201 f           101 11         Harmonia         100 f         101 f         101 f         101 f         201 f         201 f         201 f           101 11         Harmonia f         Harmonia f         Harmonia f         101 f         111 f         112 f         101 f           102 f         -101 f         Harmonia f         101 f         112 f         101 f         101 f         101 f         101 f           102 f         -101 f         Harmonia f         <  |
| <b></b>  | DOWN prize puzzle wil<br>1 Fluster French cook with with names of<br>Seasoning 184 Sator   | I he published East Company of the start of  | Cark Len FA 513 513 513 113 1 & C Umi Trust Management Llai for the set<br>anno 1995 513 513 513 513 513 513 513 513 514 514 514 514 514 515 515 515 515 515  | _ 1938 2136 -08 29 14(774)(44)44 - 1769  | Mgt. Ltd Jest Growth Tr. 1577 1560 – 20, 03<br>031-556 9787 15 1511 1511 318 - 901 20<br>1793 102 177 1540 17 - 220 165 401 02<br>1059 - 16 032 101100 1652 411 - 022 11<br>1054 - 02 046 Eugene 11 173 1196 - 05, 26<br>1162 - 911 222 Hassens 11 230 253 11  |

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| 22   | Financial Times Tuesday  | August 26 1986  |
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| Waverley Asset Management Ltd (a) (c) (g) Gity of Ediaburgh Life Assurance<br>13 Charlone Sa. Ediaburgh (31-225 155)<br>And Wave Gold  | Previncial Life Assurance Co Lbi Schweiser<br>222 Brhopsste, Loodon EC2 01.347 6530 Januar Schw<br>Manager Fd. 405 etc.2 01 - Projecti<br>Cas Fd. 1967 200 etc.2 01 - Projecti<br>Cas Fd. 1967 200 etc.2   | Long Assessment Long Line Line  |
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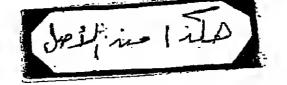
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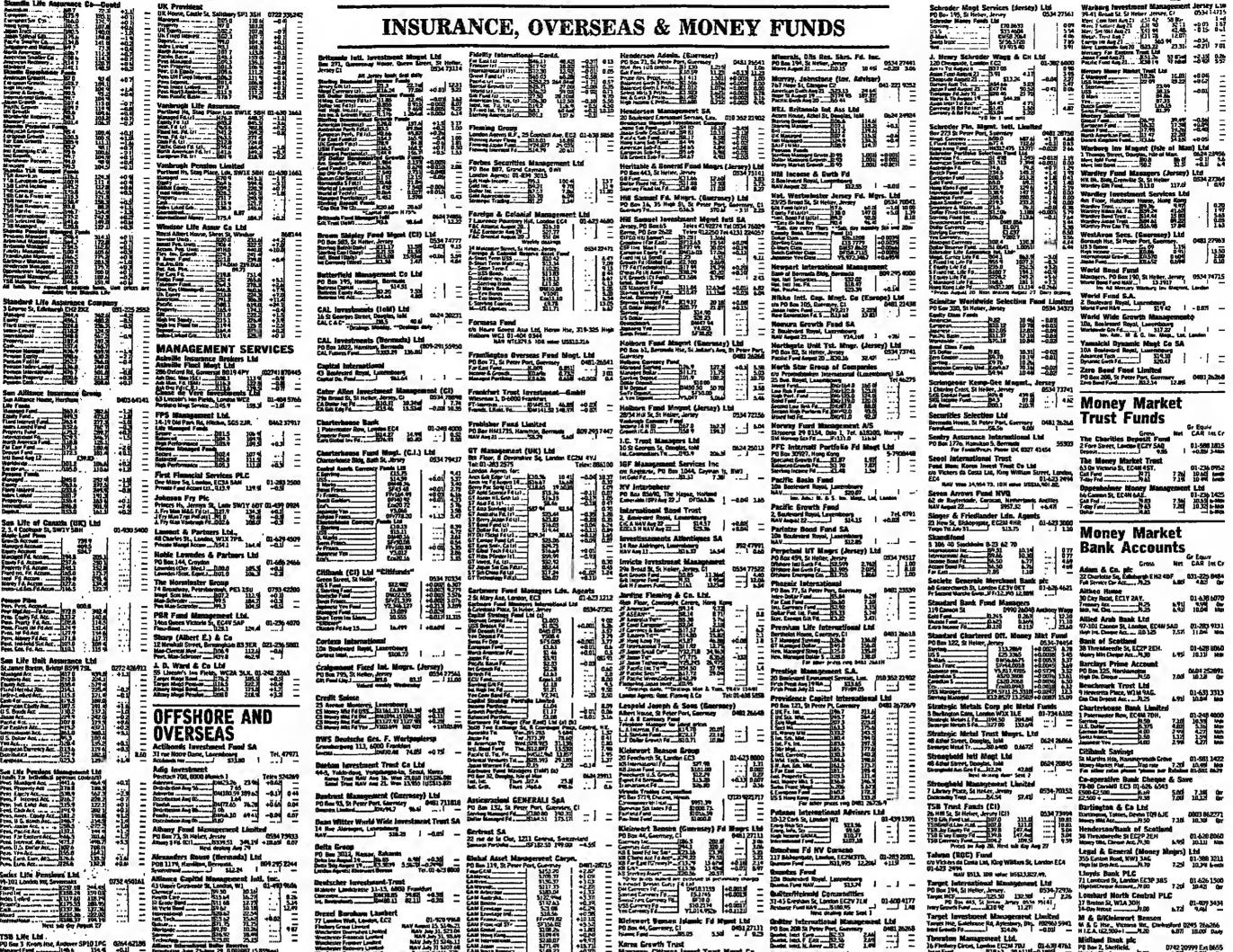
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| ties<br>rarel<br>of tl<br>with                           | Direction         Direction <thdirection< th="">         Direction         <thdirection< th="">         Direction         <thdirection< th=""> <thdirection< th=""> <thdir< th=""><th>Zz         July         Mar(Tate &amp; Live 13</th><th>and the second second</th></thdir<></thdirection<></thdirection<></thdirection<></thdirection<>   | Zz         July         Mar(Tate & Live 13  | and the second |   |
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| YOU o<br>of th r   | Sthem 310 pcc [restore 6/w 23-66]         Sthew 310 pcc [restore 6/w 23-66] <th 23-6<="" 6="" colspa="[restore" th="" w=""><th>L4         May         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         0.47         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         200         1.07         Mary         Homoscientum Rest. 200         200         200         201         201         7.4         1.4         1.7         Mary         Homoscientum Rest. 200         200         201         201         1.07         Mary         Homoscientum Rest. 200         201         &lt;</th><th>2009 20 (2010) \$2(0.0)<br/>po 150 31 [13.1 \$211.1<br/>5 205 [1.4 4.5] 4.1 20100<br/>5 205 [2.4 6.0] 3.0 3.0[12.4<br/>make 205 [2.4 1.4] 1.4[21.0]<br/>4.159 208 [2.4 2] \$15.0 (4.6 1.1] 1.4[21.0]</th></th> | <th>L4         May         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         0.47         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         200         1.07         Mary         Homoscientum Rest. 200         200         200         201         201         7.4         1.4         1.7         Mary         Homoscientum Rest. 200         200         201         201         1.07         Mary         Homoscientum Rest. 200         201         &lt;</th> <th>2009 20 (2010) \$2(0.0)<br/>po 150 31 [13.1 \$211.1<br/>5 205 [1.4 4.5] 4.1 20100<br/>5 205 [2.4 6.0] 3.0 3.0[12.4<br/>make 205 [2.4 1.4] 1.4[21.0]<br/>4.159 208 [2.4 2] \$15.0 (4.6 1.1] 1.4[21.0]</th> | L4         May         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         0.47         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         125         1.4         0.13         0.4         1.47.3         Mary         Homoscientuments Rest. 100.         200         1.07         Mary         Homoscientum Rest. 200         200         200         201         201         7.4         1.4         1.7         Mary         Homoscientum Rest. 200         200         201         201         1.07         Mary         Homoscientum Rest. 200         201         <  | 2009 20 (2010) \$2(0.0)<br>po 150 31 [13.1 \$211.1<br>5 205 [1.4 4.5] 4.1 20100<br>5 205 [2.4 6.0] 3.0 3.0[12.4<br>make 205 [2.4 1.4] 1.4[21.0]<br>4.159 208 [2.4 2] \$15.0 (4.6 1.1] 1.4[21.0] |
| favor<br>head: c<br>swirl c.<br>to. t T<br>bank: fr      | Bit effection         Price         Last Div         Vial         Jan         July from a Decision         State         State <th< th=""><th><ul> <li>May Decidentials Cancel 39</li></ul></th><th>29 144 379 22 49127<br/>29 14 14 120 40 43 59<br/>29 129 26 127 30 33 118<br/>30 10 129 26 127 30 32118</th></th<>   | <ul> <li>May Decidentials Cancel 39</li></ul>   | 29 144 379 22 49127<br>29 14 14 120 40 43 59<br>29 129 26 127 30 33 118<br>30 10 129 26 127 30 32118  |   |
| Test, P<br>alrea U<br>varia b,<br>many ce<br>river, fa   | F NY 49 Rated 31       24 - 1.1       31.20 - 1.4 <th>Apr         Savey % 10p         370         20.4         35.6         13.14.9         Mit         Seven Uncount al.           60         Apr         Sept         Sakis 10p         42         20.7         1.3.14.9         -         10.0.01.1           61         Apr         Sept         Sakis 10p         -         62         20.7         1.3.31         2.714.8         Jak.         Dec.Lon. 6. No           63         Apr         GetLinsshore Fore         -         1.5.0411.8         15.451.7         5.114.3         May         Mortlowe &amp; Son           1.3         Apr         NDUSTRIALS (Miscel.)         Misc         Sonthart cristly Pilling         Jame         Dec.Linv Hidgg         Jame         Sonthart cristly Pilling         Jame         Jame</th> <th>10p         237         11.8         12.2         1.9         13.2           Marta         233         4.6         25.2         29.19         1           Marta         233         4.6         25.2         29.19         1           Marta         233         4.6         25.2         29.19         1           m. Gp.         133         -         -         -         13.9           w. 550        </th>  | Apr         Savey % 10p         370         20.4         35.6         13.14.9         Mit         Seven Uncount al.           60         Apr         Sept         Sakis 10p         42         20.7         1.3.14.9         -         10.0.01.1           61         Apr         Sept         Sakis 10p         -         62         20.7         1.3.31         2.714.8         Jak.         Dec.Lon. 6. No           63         Apr         GetLinsshore Fore         -         1.5.0411.8         15.451.7         5.114.3         May         Mortlowe & Son           1.3         Apr         NDUSTRIALS (Miscel.)         Misc         Sonthart cristly Pilling         Jame         Dec.Linv Hidgg         Jame         Sonthart cristly Pilling         Jame  | 10p         237         11.8         12.2         1.9         13.2           Marta         233         4.6         25.2         29.19         1           Marta         233         4.6         25.2         29.19         1           Marta         233         4.6         25.2         29.19         1           m. Gp.         133         -         -         -         13.9           w. 550  |   |
| He as<br>walkt as<br>were G<br>turbe of<br>there as      |  | Optimization         Addition         182 (211)         6.73 (a)         5.34 (c)         magnetize           Optimization         Arrial M 100 (c)         122 (a)(1.16 (c) 7.37 (c)         5.31 (c)  | Mar Sop   |   |
| fy. F ur<br>good co<br>terin: a<br>if thi la<br>the a    | But Lot Re (minimum first)   | 3         May         Disclosures Most Sp.         7         11.4         2.3         2.3         - <th-< th=""><th>Anderial 90 2511 74-9 117 -<br/>main 10- 140 102.9 103.27 23 129.11.6<br/>57.5% 514 50.6 0747 23 8.9 -<br/>110</th></th-<>  | Anderial 90 2511 74-9 117 -<br>main 10- 140 102.9 103.27 23 129.11.6<br>57.5% 514 50.6 0747 23 8.9 -<br>110   |   |
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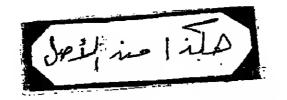
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| • ·                                | Financial Times Tuesday Au   |  | PRODERTY  | INVECTURES *   |  | D-Copt.   | 25   |
|------------------------------------|--|--|---|--|--|---|--|
|                                    | Cleverents Last: Onr. Yte<br>Paul Steck Proce an Net Stevi Gr's IVE<br>Jan Javilstangan Creable 257 - 28.4   8.5   1.7   47.16.1<br>Blav children (IRT FA. 20),   221.4  | Pand         Stack         Proce         ad         Me1         C'errights         PrE           Jan         Jatticescorescone         100         100 atticescone   | PROPERTY—Continued<br>Dividends Last Div Yiel<br>Paul Stock Price at Ket Cirrier's Pric<br>Divideor Action Noting 100 15 123 6-1 - 1 0<br>July Charger Trans. 100 15 123 6-1 - 1 0<br>Sen Gr Pauland Stor 465 30.6 1078 41 2 2175<br>reb. Sen Gr Pauland Stor 166 125 1223 5  | Do Warrans 92.01 BL  | Last Dr.v Yid Orvidensis<br>rd Net G'vr Gr's Pard Stock Prac<br>1/25 / 100/10/42 April Do Corr, PI So 78<br>2411.8 11/08/09 April Do Corr, PI So 78<br>2471.0 Critisa and Inter Sign 1.288   | Last Dow Y1d Dividends<br>e ad Ref C'ur Rr's PC Pard Slack P<br>24.2. 075 2.81 14.37.4<br>74.2. 075 2.81 14.37.4<br>74.2. 195 2.81 14.37.4<br>74.2. 195 2.81 14.37.4<br>January IBeatris Minesti<br>Jane F.S. Cons. Cold Str  | Last Drv 176<br>Trice od Net C'or Gr's<br>130 166 ' 1015c 12 - 30<br>600 125 201e0 - 192   |
|                                    | New         Julicity HW Computers         295         24.2         6.01         3.07         2917.0           Marx         Scyle Hassinger         -         -         Mont Assignment         201         1921         -         1.8         -           -         Mont Assignment         201         1921         4         -         1.8         -           Jas         John Microwson Junity 100         -         25         10.4         0.01         12         3.023.0           Jas         John Microwson Junity 100         -         75         10.4         0.01         12         3.023.0           April         Scriftshire 4         1.02         1.02         10.23         0.0340.2           April         Decriftshire 4         1.02         1.02         10.03         0.0440.2           -  | Dir         Marginetria Morid 10p.         175         1.4         15.21         33         4.21         10.01           Marginetria Morid 10p.         175         1.4         15.21         33         4.21         10.01  | March [Gree Propertin 1.56  | April Draynon Japan  | 2 [242] 10:13:02   Kommender   Kuadu 100   | W214.7         0.30         5.3         1.7         15.4         Marklermony Str.   | 600 125 20123 - 132<br>605 14 025 015 13<br>605 14 025 0 11 4<br>257 251 075 31 7.6<br>600 16 6 0450 19 17.1<br>800 10 3 10100 11 10 3<br>430 12.5 0234 1.0 1142   |
|                                    | Vety         Appropriate Synth 5p.         253. 02.51         3.9.2.1         3.2.2.0.6           Vety         NonODE Sp. Comp.         1097.40.         109.4         0.9%         -         12.7           Frb.         AppLOrder to the Sp.         109.4         109.4         0.9%         -         12.7         -           Frb.         AppLOrder to the Sp.         109.4         109.4         109.4         12.7         -         12.2         12.8         12.2         12.8         12.2         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8         12.8  | Image: Control of the state of the  | une Junikandanes Pros 10 s 280 lik ś. rý 87 2.5 i 4.910.5<br>un Nos4918 Liand   |  | 1         -         100         <  | Triangle         Triangle         Discover   | Platinum<br>6445,01.4 (08106,1.0   4.8<br>428,01.4 (0555,5.1   3.4<br>325,120.6 (02006 x 115.1<br>720,00.3 (0135,1.9   4.9<br>610,0242,01064 \$   4.5  |
|                                    | Harry         Word(reframe f.1   | Apr nov Saga tob 200   | Locate Literation interime  | Dec         Ameline & Scot Ive   |  |   | 720w511.8   01350 1.6   5.0<br>/rican<br>130 [ 5.6   060c] e   13 9<br>13   16 4   v05c13 6   13.9<br>13   79'80   - 1 - 1 -   |
| • •                                | Aury         Bodily are Parker Aug.         Stol 1.9         PTS-21.47         2.7727           Aury         Model Parker Kowang K.         Stol 1.9         PTS-21.47         2.7727         2.7727           Cibruary         Model Parker Kowang K.         Stol 1.9         PTS-21.47         2.7727         2.7727           Marker K.         Model Parker Kowang K.         Stol 1.9         PTS-21.27         2.7727         5.77           Aug.         Model Parker Kowang K.         Stol 1.9         PTS-1.28         0.11%         —         0.66           Aug.         Frei Do Lige Data 94.422         Stol 1.81         0.11%         —         0.3.8         —           Aug.         Frei Do Lige Data 94.422         Stol 1.43         0.01.29         7.271.25         7.271.25   | - + + + + + + + + + + + + + + + + + + +  | ince         Dec! Dis 8 and La 2020-05         12.39         2.0         0.09√1.95         15.1         2.34.2           an         Dottand investors   | Jan John A Carbarce Im 112<br>April IF & C. Eurorins   | 2 16.6 17/1.2/09 Dec Narch53/errmess2/50   |   | 65 10.3 07 5c 6 3.1<br>400 124 02402 35 15.7<br>776 5006 01804 20 5.9<br>5423/14 014502 11 8.9<br>5225/3026 04502 0 4.4<br>20  |
| · .<br>:                           | Marr         C (Peertex)         1376             Marr         C (Peertex)          145         10.22         6.3         6.4         9           Marr         RovPeertex  | App:         Read(10) feature (rotoper)         64         16.4         34.0         -   | Morth MEPC  | I Do Warrants  | 2  | 27801   | 490  |
| 1999<br>1997 - 1997<br>1997 - 1997 | Step         Following Ling         100 lb / 100 lb   | MOTORS, AIRCRAFT TRADES<br>Motors and Cycles   | Mar Marin Indore 50   | Oct         MaryFlemming MetricarUle         1260           Facb         Aug/Flemming Overseal         151           Face         Sauk/Flemming Term Inv         142           Nov         JulyFlemming Universal         131           Det         Apr/Foremon & Col            Nov         JulyFlemming Term inv         131   | 1 (113) 133 133 1332 — (Mandred and Ford)<br>1 (131) 275 4 126 — (Mandred Ford)<br>1 (28,7) 234 0.8 123 — (Mandred Ford)<br>1 (28,7) 234 0.8 123 — (Mandred Ford)<br>1 (13,7) 123 (Mandred Ford)<br>1 (1 | Image: Image in the second s   | 6%6 506 6 (0.600 ¢ 64<br>522 002 (0675-22 37<br>650 306 (0.554 ¢ 6.2<br>500 30.9 (0.254 2 11<br>300 32.5 (0806 ¢ 72<br>14*,125 (294176 - 91<br>• 10780 - 12 11<br>• 10780 - 12 1<br>• 10780 - 12 1<br>• 110780 - 12 |
|                                    |  | Mr. Jan Sp. Dicers, Mrs. Unics   | une         Howe Equal Proc.5c.         15         20.3         16         0         2.8         0           Sentember         Parkulair Hinty.         100         2004/128         16         0         2.8         0           Work Teacher  | ID Cao 21ec  | 2,12.5 17.91 J.0 17.48 - "Semicinic Explor. 10.9 J.30<br>2,12.5 17.93 1.0 17.48 - "Wender Of   | 1   | 290 2.6 0650 2.6 8.5<br>511277.7 0300 1.7 15.8   |
| ·<br>                              | Jan. Judy Recting & Galaxian 798 1255 16.0 243 281169<br>Ang Freithenteam Glass. 200 80.6 120162 1.4124<br>Jan. Jang Rect International 248 2012 45.0 1.71 0<br>Jan. Ang Rect International 248 2016 563 32 32125<br>Get. Janet Rebuin. 1581018 1465 25 3.713.6  | Commercial Vehicles  | an. July Prop. & Revenuedy J. 234, 156 ( 4.5 33 ( 27)40.0<br>pr. Dot Prop. Sec. Im 500, 137 w011.8 ( 2.5 4 ( 27) 4<br>(Property Tol 100, 514) ( 2.5 4 ( 27) 4<br>overther Raska Prop 1a   | Jan, July Gartmore American I 130<br>Apr Nov Barbache ini & F. Tst. J 51<br>— Do. Watt and S I 204<br>Aug. Marigeo Consolicated 300  | ) [26.] [31] 27 [34] — ITBryson OH Gas 109 [34]<br>[26.2] 1.110.7 [31] — House Ret (50.25.]<br>[37] [41.2] — [] hay Declarman £1   | Image: Second  |  |
|                                    | Mar. Sept.Respire  | Sept         Feb/Abbey Panets         255         13.1         20.9 9.3         1.11.3.7         S.           Apr         NonfArmanaze Exp.         74         10.2         2.831         9         5.61         9           Jan         John Jahn Thur Scream Fines         57         16.6         1.94.0         3.79.5           Mary         Non-Marmanese Exp.         74         10.2         1.44         1.11.53         1.315.2         J.           Oci         Feb/H&TS 10.0         65m11.18         4.01.9         6.510.2         a         4.54         4.54         4.54         4.54         4.55         4.54         4.55         4.54         4.55         4.54         4.55         4   | President Provide Provi | German Securities  | i         i         i         july         Charterhall Su  | 1135  | 14 - 2014 - 3.0<br>26 - 0.55 + 4.4<br>124 - 90533 + 2.8<br>107 113 - 1014* 11 - 5.3<br>28  |
|                                    | Juny         Maile & Nolan 10p         87         30.6         2.01         2.9         3.214.8           Dec         Junet Romer         130         12.5         6.5         2.0         7.010.0           Dec         Junet Romer         120         12.5         6.5         2.0         7.010.0           Dec         Junet Romer         23         127         12.5         6.5         2.0         7.010.0           Jam         Dec         Junet Romer         23         1278         -         -         -         -           Jam         Auginesseli (AJ 30p         -         90         14.7         1.12         2.5         2.02         2.0 <th>Jun Jung Kunk Fri Hings 100 J 115 (1225) 2J 29 20174 A<br/>Jun Jung Handuras Hand 1 J 351 (144) 1110(43) 29 63<br/>June Henduras Hand 1 4 4 1110(43) 29 63</th> <th>may becauter nonegrav. 3394,223,102,102,15,122,25,250<br/>9. Jan. Scott Metron 300, 95 (30.6) 74.0 11 (5.9,21.8)<br/>— Kiheshaat Prop 32 (175) 0.5 4 (2.2) 4<br/>9. July 55 Metroton Scott. 100.1 (43,11,05) (20,27,23) (30,0<br/>4. May 55 metro Scott</th> <th>March Greentrar lov</th> <th>1 2964 3.6110 [21 — 470 cmm abord Pet NL] 2<br/>11 21 17111 [10] — 410 cmm abord Pet Hat Ret., 195<br/>1471 4.85120 [22] — 470 cm failed String, 103<br/>1242 4.96121 [22] — 470 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br/>125.51</th> <th>1         -         -         WCarting Exploring           -         -         -         WCarting Exploring</th> <th>43 - 1 00d - 6.1<br/>12 - 1 00d - 6.1<br/>39 - 1<br/>9<br/>9<br/>13</th> | Jun Jung Kunk Fri Hings 100 J 115 (1225) 2J 29 20174 A<br>Jun Jung Handuras Hand 1 J 351 (144) 1110(43) 29 63<br>June Henduras Hand 1 4 4 1110(43) 29 63   | may becauter nonegrav. 3394,223,102,102,15,122,25,250<br>9. Jan. Scott Metron 300, 95 (30.6) 74.0 11 (5.9,21.8)<br>— Kiheshaat Prop 32 (175) 0.5 4 (2.2) 4<br>9. July 55 Metroton Scott. 100.1 (43,11,05) (20,27,23) (30,0<br>4. May 55 metro Scott   | March Greentrar lov  | 1 2964 3.6110 [21 — 470 cmm abord Pet NL] 2<br>11 21 17111 [10] — 410 cmm abord Pet Hat Ret., 195<br>1471 4.85120 [22] — 470 cm failed String, 103<br>1242 4.96121 [22] — 470 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>124.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.95120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.5 4.5120 [3.6] March Oct № 0 cm fail Pet Dans<br>125.51   | 1         -         -         WCarting Exploring           -         -         -         WCarting Exploring  | 43 - 1 00d - 6.1<br>12 - 1 00d - 6.1<br>39 - 1<br>9<br>9<br>13   |
|                                    | Dec. Analysian francy 228 (14 96.5) 20 4.013.3<br>Nov JulySanchurst Mid. 10p. 70 2.6 124115 251375<br>ISSanchurst Mid. 10p. 171 - 930 25 32173   | Alexanders Top         179-3769         -         -         196.3           Hand Applepant Gra         149         1.4         15.0         3.4         4.8         7.3         J.           Jam.         July Size inst. Top         -         46         12.5         1.1         2.4         3.441.41         A.           New         Jame Barowali (C. 0.3)         285         23.4         d7.77         5.3         5.8         6.2         J.           New         Jame Barowali (C. 0.3)         285         23.4         d7.77         5.3         5.8         6.2         J.           July         Jame Barowali (C. 0.3)         285         23.4         d7.77         5.3         5.8         6.2         J.  | prost Southend Stadium Sp. 139 116 6 0.56 0.8 1 0.6 - 1<br>tee DecSpeyhawk 415 130 6 d9 52 2.1 1 3.2 20.5<br>eb. Aug Standord Sees 165 114,7 74 05 2.2 3.5 18.7   | Juty Dec.Hit11Paukol   | 1         1         1         1049         10400000000000000000000000000000000000  | 1/22         1/10.69         TEastnet AS0.20           1/24         1/2.59         WEngerdr Minor           1/24         8.59         3.5           1/24         8.59         3.5           1/24         8.59         3.5           1/24         8.59         3.5           1/24         8.59         3.5           1/24         8.59         3.5           1/24         8.59         3.5           1/24         8.59         3.5           1/25         1/25         1/25           1/26         1/25         1/25   | 66  -     -   -<br>100  -   06d - 10<br>117   -   -   -<br>33  -   -   -   -   |
|                                    | Jame         Decisioni Robertson   | Feb         Aug[Come [7] 5 m   | Bit         Jane Town Centry         53         112.5         1.0, 2.0         2.7, 26.4           February         H7mmpade Secs 20m         30         27.1         471.01         37         4.7, 6.6           Iv         Non-Training Park         230         1.4         121.5         1.3         7.6, 4.9  | loc John Strate 1 520<br>Ron Aprilos Haldings  | 1 (2.6)         (0)4(5) ↓ 1.1 (4.5)         —         Falcon Res. 100  | Image: State of the state o   | 450  136   1760   -   +<br>36   -   -   -   -<br>112 -   -   -   -<br>59   -   -   -   -<br>20   -   -   -   -<br>17   -   -   -   |
|                                    | Apr         SepSecurity Services   | Nov         Jame 24 Julia         Mark 100 pm         63         2014         2.05         2.35         0.01         Mark 100 pm         63         2014         2.05         2.35         0.03         10.06         11         4.51         2.05         0.01         11         4.51         2.05         0.02         April 10.06         11         4.51         2.05         0.01         11         4.51         2.05         0.01         11.05         11         4.51         2.05         0.01         0.01         0.01         0.01         0.01         4.01         0.01 <th0.01<< th=""><th>April Trast of Prop 5p. 62 242 0.5 L1 111 -<br/>NK Land - 142</th><th><ul> <li>Kisemaart Der Frd 159</li> <li>Oct April Kiermaart O'sezs Tst 128</li> <li>May NorkKiermaart Smaller Cos.</li> <li>Juhy Stari Lancs &amp; London Inv 141</li> <li>Anr. De Liaw Detenture</li></ul></th><th>242 2 2510 26 143 500 1675 30 167 50 167 50 167 5</th><th>28.4         1.0         0.7         4.5         56.6         —         Windows Gia Nu</th><th><math display="block"> \begin{array}{cccccccccccccccccccccccccccccccccccc</math></th></th0.01<<> | April Trast of Prop 5p. 62 242 0.5 L1 111 -<br>NK Land - 142  | <ul> <li>Kisemaart Der Frd 159</li> <li>Oct April Kiermaart O'sezs Tst 128</li> <li>May NorkKiermaart Smaller Cos.</li> <li>Juhy Stari Lancs &amp; London Inv 141</li> <li>Anr. De Liaw Detenture</li></ul>  | 242 2 2510 26 143 500 1675 30 167 50 167 50 167 5   | 28.4         1.0         0.7         4.5         56.6         —         Windows Gia Nu  | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |
|                                    | April Dec         195 hc13i         196 hc3         5.25i 31         3.91118           Jan         Mythistering         466 hc6         17.5 4         5.44 4           Oct.         Magranth&disph 10p         127 ml14         193.33 2.3         2.5/240           Jang         Dect.         Magranth&disph 10p         127 ml14         193.33 2.3         2.5/240           Jang         Dect.         157 ml14         193.33 2.3         2.5/240           Jang         Dect.         14.64         54.5 2.6         2.4/20.6           Jang         F05 bmsc.         46         30.6         2.0 1.7         6.113.0   | NEWSPAPERS, PUBLISHERS         Same           May         0x1263, Bost P. 209         265         144         1201 26         2451.0           May         0x1453, Bost P. 209         285         144         1201 26         241.10         4           Feb         AugActor, Merce         285         144         1201 26         161.10         4           May         0x1263, Bost P. 209         285         144         1201 26         241.10         4           May         0x1263, Bost P. 209         285         124.1         1201 26         241.10         4           May         0x1263, Bost P. 209         200         7         85.01         22         3417.9           May         0x1264         1201 126         1201 126         3417.9         124.1         126.14         126  | ar, Oct West & Country  | Dec JahrLon Atlantic 168<br>October it.on, & Gant. 50p 340<br>May Dec. Lon, & Strathctyde 168<br>October Rundon Trathctyde 644<br>Do Warrants 32   | 126         6.71         10         5.0         Jan         July: Do. Light Circle, La, "7   | 26 010° 99 009 - Wildestations 25c  | 30         -         1         10         23         5         -         -         1         5         -         -         1         5         -         -         1         5         -         1         5         -         -         1         5         -         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5         -         1         5   |
|                                    | Jame         Spearce W1485(42)         C17         D36(40)354         0         2.21         0           Mar         Aboy Stok Bus Gro J00,         D37         14.7         1427         3.7         2.412.5           Nov.         Asny Saveru U.W.L.,         Juss 284.4         6.07         2.0         4.015.7           July         Spatiah Products 200,         July         195         284.4         6.07         2.0         4.015.7           July         Spatiah Products 200,         July 27.1         1.6         591.272         2.0.411.10         2.915.5           July         Spatiah Products 200,         July 27.1         1.0         2.915.5         1.01         2.915.5  | Feb         Auditionatul Ever, Post  | K. Aug Bent & Conver, 10p   | — ( Do. Cap. 109   | Output         E.9         Protections training 1         14   | 36.9 15 13 15 16.7 June Montesate Re-HLAS02   | 17         -   |
|                                    | - Star Comp. 10p   | Annow Pails         100         201         171         200         2013         111           Apr         OctHiames Pails         350         103         a13.01         1.5         5.21.71           May         Ministane Contribution         350         10.3         a13.01         1.5         5.21.71           May         Ministane Contribution         300         10.3         a13.01         1.5         5.21.71           May         Ministane Contribution         300         10.5         5.21.71         1         3.22.73.9           Jam,         Johnellin, Thomesonic term  | Los Pra. Und. 10  | Apr         Septill-charm terr         222           May         OctWercharms Tst         115           Apr         OctWercharms Tst         125           Apr         OctWercharms Tst         123           Jan         JohnMinks Intertan   | 1.4         rd 31,1015.3         —         Full Standar Pet Son_2         21           26.2         2.2.3         6         1.9         —         Wragetta Pet Son_2         52           10.6         2.64         1.0         1.7         —         Wragetta Pet Son_2         52           20.5         2.63         7.1         1.42         6         4.7         —         11Manner 100         24           20.2         1.5         1.0.1         4.7         —         11Manner 100         24  | Parage Resource NL<br>Parage Resource NL<br>Parage Resource NL<br>Agr. Oct. PPetro Walkend Str.   | 18   |
|                                    | Aori         And Strettmen Inde 250  | Aud.         Dec. Personantia S. Sond         121         25.6         21.3         311.4         3           Aud.         Dec. Personantia S. Sond         12.2.6         4.01         e         4.7         6         Ja           Doc.         AperTrivity Int Hit 500         433         12.4         15.01         2.2         5.111.0.7         Ja           Rev.         AperTrivity Int Hit 500   | W         100, 6-3pc Cm/Rd Pl.         146 (12.5)         6.3m (-)         1.4.1 (-)           n.         July Romonau (1/2)         1.33         2.6         5.07 (1.4)         5.31 (0.4)           n.         July Romonau (1/2)         1.33         2.6         5.07 (1.4)         5.31 (0.4)           n.         July So Rection (2010)         1.11 (1.4)         1.28         0.42 (5.9)         2.31 (0.4)           nuary         Trational (0.6)  | Op. 8     Sept Murray Smile Markets.     Jan     Sept Murray Smile Markets.     J328     May     Nox32 uray Vebures.     J79     December Mex. Ass.     J00     100  | 12.6         H5 0: 1.1         1.4.3         —         Filternance() 01 So   | 30.6     Q2.5cl     1.4     -     Wheren Klargare Gold_       12.8     -     -     -     October     WRenizon Stor       12.8     -     -     -     -     Wrenizon Stor       12.8     -     -     -     -     Wrenizon Stor       12.9     -     -     -     Wrenizon Stor       12.9     -     -     -     Wrenizon Stor       Wrenizon Exp(*n, Ni,   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |
|                                    | Jane         Rowing Part A 602.         1191/03 4         10072         3.61         0           Frit         Anal Systemice Hidgs         32         16.7         1         - <th>PAPELR, PRIMINER, AUVERTISING PRIME<br/>June SATA Selectors 5</th> <th>nc June Headlam, Sints Sp 39 166 0.5 0.2 1.6 -</th> <th>June Dec Merk Loor Sub</th> <th>14 0.63 1.5 1.5 − 94th Sei &amp; See Ins £1. 20<br/>16.6 3.35 ♦ 7.7 − 94th Sei &amp; See Ins £1. 20<br/>16.6 3.35 ♦ 7.7 − 94th Sei &amp; See Ins £1. 20<br/>16.7 − 94th Sei &amp; Sei &amp; See Ins £1. 20<br/>16.7 − 94th Sei &amp; Sei &amp; See Ins £1. 20<br/>16.7 − 94th Sei &amp; Sei &amp; See Ins £1. 20<br/>16.7 − 94th Sei &amp; Se</th> <th></th> <th><math>\begin{array}{c ccccccccccccccccccccccccccccccccccc</math></th>   | PAPELR, PRIMINER, AUVERTISING PRIME<br>June SATA Selectors 5   | nc June Headlam, Sints Sp 39 166 0.5 0.2 1.6 -  | June Dec Merk Loor Sub   | 14 0.63 1.5 1.5 − 94th Sei & See Ins £1. 20<br>16.6 3.35 ♦ 7.7 − 94th Sei & See Ins £1. 20<br>16.6 3.35 ♦ 7.7 − 94th Sei & See Ins £1. 20<br>16.7 − 94th Sei & Sei & See Ins £1. 20<br>16.7 − 94th Sei & Sei & See Ins £1. 20<br>16.7 − 94th Sei & Sei & See Ins £1. 20<br>16.7 − 94th Sei & Se  |   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |
|                                    | August Rise Turnes Veneter Sel. 26/32.0 (40.5) (1.6) (2.7)<br>Dec Maryle Turnes Veneter Sel. 22 (14.4 (16.00) (1.7)<br>June DecThard Mets Inn, 112 (2.6) (2.2) (2.4)<br>Thomson T.4.9 (2.5) (4.6) (2.2) (2.4)<br>Mr. In So. DelThard Sel. 200 (2.5) (2.4)<br>Mr. In So. DelThard Sel. 200 (2.5) (2.4) (2.5) (2.4) (2.5) (2.4) (2.5   | June NovBoxee Massem 12:50.290 28:4 ( HSJS 3.91 2.8/170 )<br>Jun JunyBPCC 278 D2S 112.0 11 ( 6.2/21 2 )<br>Jun ScelBrunneg Grp 385 9.12 ( 2.1 ~ 1 0.327 ) 0d   | April 2019 & Futer  | <ul> <li>Marcic Im 13 (2011) 544</li> <li>Jene Dechth, Aubard Sec</li></ul>  | 2141         3017         0         -         yrea (u)         -         -         yrea (u)         -         13         -         13         -         -         10         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         -         40         -         40         -         -         40 </th <th>28.4         1.5         4.5         5.3         4.6         —         Western Coard 25c         …           28.4         1.5         4.5         5.3         4.6         …         Western Coard 25c         …           28.4         6.0         1.4         9.8         10.1         May         Dec/western, Maning 50c         …           262.5         87.00         3.0         3.7         9.1        </th> <th><math display="block">\begin{array}{c ccccccccccccccccccccccccccccccccccc</math></th>  | 28.4         1.5         4.5         5.3         4.6         —         Western Coard 25c         …           28.4         1.5         4.5         5.3         4.6         …         Western Coard 25c         …           28.4         6.0         1.4         9.8         10.1         May         Dec/western, Maning 50c         …           262.5         87.00         3.0         3.7         9.1   | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |
| . · ·                              | May Deck-Tool So Trin Typeon are Suboring 33 3.3 3.3 3.3 3.3 3.4 5.1 3.7<br>Apr DictionAsis (F, M.) 50 337/611.8 2.8 4 1.2 4<br>Do 5 for Caching Mr. 123   | Here dependent = 1 = 23 (26.4 + 23.3 (26.4 + 23.3 (26.4 + 23.3 + 25.4 + 23.4 + 25.4 + 23.4 + 25.4 + 23.4 + 25.4 + 23.4 + 25.4 + 23.4 + 25.4  | m. marticione Pink № 276 ± 54 €271 ± 532 ↓ 513 5 ↓<br>• Non/New Mein Prys Ro 25.1 55 €242 11 €152 ± 241 ±11 558<br>• John Russaws 501   | April Pacific disets 75 50a.1 78<br>— 1 Da. Ser. 1 Warrans 32<br>Judy Pezefic Inv. 78 25<br>— 1 Da. Warrants   | 10.3         -         -         SPELL Pert £1   | d         -         -         -         Tines           d         -         -         -         -         -         -         Tines           d         -         <   | 135 (10.3   v0155c   1.3   29.7<br>27   17 6   150   |
|                                    | Jone         (1776         77         20.4         17.12         20.7         21.77.31           How         May Transport Drv.         191         1.4         16.2         2.1         5.2         17.7         31           How         May Transport Drv.         191         1.4         16.2         2.1         \$.2         17.7         31           Jay         Transwood So         154         176   | June         Chrometty         June         Chrometty         June         Chrometty         Status         Stat  | TEXTILES<br>2. Apr [alited 7ectile  | Licvember Precoos Metals Tst   | 10.3 1 s0.2 6 10.2 August 2500000000 Mes. 400 1 13   | 11.4         95.01         2.2         5.64(9.3)         Dec         Sequence         Sequence <th>21 0111 v022 0 25<br/>174 - B<br/>275 v030<br/>90 2511 v060d 0.2 17.2<br/>90 12.8 450932 - +<br/>12.8 450932 - +<br/>10 681<br/>75 12.5 v045c 0.8 13.55</th>   | 21 0111 v022 0 25<br>174 - B<br>275 v030<br>90 2511 v060d 0.2 17.2<br>90 12.8 450932 - +<br>12.8 450932 - +<br>10 681<br>75 12.5 v045c 0.8 13.55   |
|                                    | September         Hungroup 15p   | Mark         More Motivaming Party 100         140         1.4         1.25         0.2         1.25.16.2         0.2         <  | <ul> <li>Marilleciman A. 10p</li></ul>  | Dct.         Gar Bree & Bencamie   | All Bit         Hub D 10         52         —         Its Ser ruit/ Royalty Eg. 7 of<br>REpergy  | 144 (243 4) - 17.9 - Anglo-Dermano - Miscettane<br>90.6 (30 4) - 4.8 - Anglo-Dermano - Anglo-Dermano  |  |
|                                    | Mar         OCTVINIEN GFD, 210         150-011.01         150-11.01         150-21.01           Jan         Mark Wath Path, 100,   | Feorutary Schutten Lyons (10), 2000/18 (2033) ⊕ 6.4 ⊕ 7 €<br>— Cold Greeniers 55.0., 197 — L 29 ⊕ 2 10 ⊕<br>April Historite at Prost 200, 120 (24.2) L3.0 (2.4) 35/14.1 Mo<br>Oci Mary Good Relations (10), 126 (2033) 4.9, 12 ± 1.714.9 Ja<br>Acc Scattly Markes Marchata (10) 325/2018.8 MI7.514.5 (0.82.29 % Mo   | g NortCrowther U.1  | —         Rorenso NV F1 10.         £144;           Oct.         Aprif S1. Anores Ts1.         1272;           Dec.         Jane SPL7 Toc. 100.         270;           —         SPL1T Cao 100.         417           Dec.         Jane SdRAIT 500.         125;           —         Do. Warzots         72;   | bill   | A 1205 3.0 P(3.3)<br>Apr OctiHampton Areas 10p.<br>Pitramoto Res<br>Pitramoto Res   | 23   |
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THIS NOTICE IS IMPORTANT AND REQUIRES THE IMMEDIATE ATTENTION OF HOLDERS OF BONDS. IF HOLDERS ARE IN ANY DOUBT AS TO THE ACTION THEY SHOULD TAKE THEY SHOULD CONSULT THER STOCKBROKER, LAWYER, ACCOUNTANT OR ANY OTHER PROFESSIONAL ADVISER WITHOUT DELAY,

NZI OVERSEAS FINANCE N.V. Notice to the holders of the outstanding US\$50,000,000 101/2 per cent. Guaranteed Convertible Bonds Due 1994 denominated in US Dollars ("the Bonds"

convertible into ordinary shares of NZI Corporation Limited ("Ordinary Shares")

Conversion Right Expiry Date: 20th October, 1986 Redemption Date: 27th October, 1986

### NOTICE OF REDEMPTION

NOTICE IS HEREBY GIVEN to the holders of the outstanding Bonds that, in accordance with the Conditions endersed on the Bonds ("the Conditions") and pursuant to the provisions of the Trust Deed dated 1st November, 1984 ("the Trust Deed") between the Company of the one part NZI Corporation Limited of the second part and The Law Debenture Trust Corporation p.I.c. ("the Trustee") of the third part constituting the Bonds, the Company will on 27th October, 1986 redeem all of the Bonds then out-standing at 103 per cent. of the principal amount, together with the Interest from and including 1st August, 1986 down to and including 27th October, 1986 amounting to US\$25-37 per Bond (that is to say an aggregate of US\$1,055-37 for each US\$1,000 principal amount of Bonds).

### This Notice is given in accordance with Conditions 7 and 14. **RIGHTS OF CONVERSION**

Holders of Bonds are reminded that they may exercise the right to convert the principal amount of his Bond(s) into Ordinary Shares not later than 20th October, 1986.

Bonds may be converted into Ordinary Shares at the Conversion Price of NZ\$1.32 per Ordinary Share which using the fixed exchange rate specified in the Conditions of NZ\$1=US\$0.4871 results in a conversion rate of 1555.2776 Ordinary Shares for each US\$1,000 principal amount of Bonds.

As provided in the Conditions, any holder of Bonds who wishes to exercise his right to convert must obtain a Conversion Notice from the specified office of any Conversion Agent (set out on the reverse of the Bonds and at the foot of this Notice), complete and sign the same in accordance with the the Bonds and at the foot of this Notice), complete and sign the same in accordance with the instructions thereon and deliver it with his Bond(s), together with all unmatured Coupons, at the specified office of any Conversion Agent at any time up to the close of business on 20th October, 1986. The Conversion Agent will require payment of an amount equal to the face value of any such Coupon not so delivered. A Bondholder delivering e Bond for conversion must pay all stamp, issue, registration or other similar taxes and duties (if any) arising on conversion in the country in which the Bond is deposited for conversion or payable in any jurisdiction consequent upon the issue or delivery of Shares to or to the order of a person other than the converting Bondholder.

On 11th August, 1986 the Current Market Price (as defined in the Trust Deed) of the Ordinary Shares on the New Zealand Stock Exchange was NZ\$ 1896 per Ordinary Share (which converted into US Dollars at the rate of exchange on 8th August, 1986 is equivalent to US\$0.966). At such price, the holder of a Bond of US\$1,000 principal amount would receive upon conversion Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a value of US\$1,503.096, Such value is, however, subject to variation with both the market value of the Ordinary Shares having a subject to variation with both the subject to variation with both the subject to variation with both the walue of the Ordinary Shares having a subject to variation with both the subject to variation with both the subject to variation with the subject to variation with both the subject to variation with the su Shares, and any fluctuation in the rate of exchange between US Dollars and NZ Dollars.

SO LONG AS THE MARKET VALUE OF ORDINARY SHARES IS NZ\$134 OR MORE (AND ASSUMING NO ADVERSE MOVEMENTS IN THE AFORESAID RATE OF EXCHANGE), HOLDERS OF BONDS WILL UPON CONVERSION RECEIVE ORDINARY SHARES HAVING IN AGGREGATE A GREATER MARKET VALUE THAN THE CASH WHICH THEY WOULD RECEIVE ON REDEMPTION OF THEIR BONDS, FAILURE TO DELIVER BONDS FOR CONVERSION ON OR BEFORE 20TH OCTOBER 1986 WILL AUTOMATICALLY RESULT IN REDEMPTION AT A PRICE (INCLUDING ACCRUED INTEREST) OF US\$1,055-37 FOR EACH US\$1,000 PRINCIPAL AMOUNT OF BONDS.

### IMPORTANT

Value of the Ordinary Shares into which each US\$1,000 principal amount of Bonds is con-vertible based on the Current Market Price of the Ordinary Shares on the New Zealand Stock Exchange on 11th August, 1986 (converted into US Dollars on the basis referred to above) of US\$1,503-096 US\$0-966 per Ordinary Share ..

Redemption price (including accrued interest) for each US\$1,000 principal amount of Bonds? .. US\$1,055-37

If any holder of Bonds wishes to accept redemption at the redemption price (including accrued interest) he should surrender his Bond(s) together with all unmatured Coupons at the specified office of any Paying Agent (set out on the reverse of the Bonds and at the loot of this Notice) on or after 27th October, 1986.

The attention of holders of the Bonds is drawn to the Conditions and In particular to Conditions 5 and 7 which contain further details regarding redemption and conversion. Copies of the Trust Deed are available for inspection at the registered office of the Trustee at Estates House, 66 Gresham Street, London EC2V 7HX and at the offices of the Paying Agents and Conversion Agents specified below.



Neue Mainzer Strasse 40/42, D-6000 Frankdurt/Main 1. Avenue de Tervuran 249, B-1150 Brussels, Herengracht 545/549, Arnsterdam. 26th August, 1986, London By: Citibank, N.A. (CSSI Dept.), Agent Bank CITIBANKO

# Diamond Shamrock ends its search

### By William Hall

DIAMOND SHAMROCK, the Dallas-based energy group which recently slashed its dividend following the collapse in oil prices, has ended its six-month search for a new chief for its exploration operations. It has appointed Mr Charles L. Blackburn, 58, to be president of Diamond hamrock Exploration Company.

Meanwhile, Mr Jack E. Little, senior vice-president of Shall, bas been promoted to exeruive vice-president. He succesds Mr Blackburn, one of three execu-tive directors of Shell Oil and head of its worldwide explora-tion and production operations.

He will fill a vacuum at the op of Diamond Shamrock, top of Diamond Shamrock, which has been searching for an exploration chief since March when it announced it was consolidating its international and domestic exploration companies and dismissed Mr C. Barton Groves and Mr C. Dale McDoulett, the two executives running the exploration rimaing operations.

They have left Diamond Shamrock, with several other executives including Mr J. L. Jackson, the group's president, who resigned last month.

Diamond Shamrock is in the process of seiling its coal and mical businesses and concentrating on its oil and gas

### New head for

### Gotabanken

By Sara Webb in Stockholm MR SVEN ERIK RAGNAR, one

of five managing directors st Skandinaviska Enskilda Banken,

Skandinaviska Enskilda Banken, the leading Swedish bank, has been appointed president and chief executive of Götabanken. Götabanken is the fourth largest commercial bank in Sweden. The top post has been vacant since June following the resignation of Mr Hans Mikaelsson for personal reasons. Mr Ragnar will take up office on October 1. Mr Ragnar has spent the past 23 years working for Skandins-viska Enskilda Banken but says

# Former office junior in line Emmerson to lead to take top job at K Mart RCA Red Seal

INTERNATIONAL APPOINTMENTS

### BY WILLIAM HALL IN NEW YORK

MR JOSEPH E. ANTONINI, who joined K Mart, the second-biggest US retailer, as a stock boy 22 years ago, has been appointed president and chief operating officer, patting him in line to succeed Mr Bernard M. Fanher as chisi executive, when Mr Fauber retires at the end of

next year. Mr Antonini has worked his way through the ranks of the company. Last January

# **Edmund de Rothschild** in tar sands project

### BY ROBERT GIBBENS IN MONTREAL

former chairman of investment bankers N. M. Rothschild of the Alta.

Markers W. M. Holschild of the UK, is becoming involved in a major tar sands mining and extraction project in Alberta. Mr Rothschild has hetped to promote and finance a number Phase one requires transport of 1,500 tonnes of sands from Alberta to Albnquerque for testing. If final results justify it, Shell is to go ahead on plant construction in 1988 for pro-duction in 1980 of large energy projects in Caosda, most conspicuously the C\$1bo (US\$780m) Churchill Falls hydro project in Labrador. duction in 1990. complated in the early 1970s and now regarded as one of

The project will test a new solvent extraction technology developed by Solv-Ex Corpora-tion, and demonstrate how pro-duction could be increased by the greatest energy bargains ever. Churchill Riser at Churchill Falls, about 1,000 miles north rails, about 1,000 miles north-east of Montreal, was diverted to drive turbinss with a capa-city of 5,000 Mw. The project was completed on time, on budget, just before the 1973 energy crisis, and the power is now sold to Quebec. similarly-sized modules. The Alberta Government is supporting the test phase and is nre-pared to provide up to C\$86m for project construction.

A collepse in energy prices, if more than temporary, could

Mr de Rothschild bas been delay most tar sands develop appointsd a director of Solv-Ex ments, but Mr Rothschild Corporation. of Albuquerque, worked many years to get work New Mexico, which with Shell started on the Churchill,

# **Canada's science minister** to have Howe as aide

### BY ROBERT GIBBENS

MR BRUCE HOWE, one of Bloedel, the forest products western Canada's best-known concern. businssemen, moves to Ottawa chairman concern. Later he became chairman and chief executive, and Mr L. Jack Smith president. at the end of November to become secretary to the Ministar of Science and Tech-Mr Smith moved to BCRIC from Westcoast Transmission nology, a job that is equivalent years ago, to that of deputy minister. Mr How

as years working for skanding to that of deputy minister, viska Enskilda Banken but says Mr Howe, born in Dryden, "with tougher competition on Ontario, and e chemical the banking scene and in the angineer by training, joined credit and capital markets, it British Columbia Resources will be a challenge to go to Investment Corporation something new. A smaller bank (BCRIC) in 1980 as president has to be more appresive and only only security form the man of BCRIC until November, while Mr Smith also assume will be a challenge to go to (BCRIC) in 1980 as pressure as something new. A smaller bank (BCRIC) in 1980 as pressure as has to be more aggressive and and chief executive from the presidency of Macmillan

he was appointed an executive vice-president and chief executive of K Mart's apparel

As president and chief operating officer he will be responsible for all operating

> Ludwig to dredger

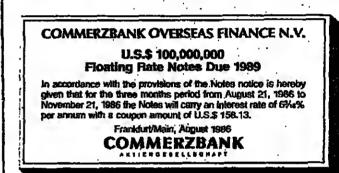
By Our Financial Staff

MR J. W. LUDWIG is to be appointed general manager of Amsterdam Ballast Dredging as from September 15. Ha will report to Mr R. B. Schermer, member of the board of manage ment of the Ballast Nedam Groep

Mr Ludwig will be in charge of reorganisation plans for the or reorganisation plans for the dredging division. These con-tain as first phase a major re-duction in staffing and elimina-tion from the fleet of older vessels for which no profitable employment can be found. Seal."

Work on existing orders is, the group says, to continue as normal. There is to be, it adds, an active acquisition effort for orders also for the trailing-

suction hopper dredger "Lely-stad," which vessel is to be ssioned soon.



divisions of K Mart. Report-ing to him will be Mr Larry

division. He joined the company at the age of 22 and moved up to assistant manager of S. S. Kreage stores in New York, Pennsylvania and Connecticut.

M. Parkin, executive vice-president for K Mart stores, Int Frederick Stevens, execu-tive vice-president for speciality rotaling, and Mr Joseph Thomas, executive vice-president and chief administrative officer. K Mart, which posted sales of \$22.4th last year, employs more than 300.000 staff world-

an international artist manage-ment concern based in London, clients of which include the flantists James Galway and Elena Duran, has been ap-pointed president of RCA Red Seal, which carries the RCA more than 300,000 staff world-wide. In the first half of its current financial year its net income jumped from \$57.6m to \$133.3m. group's classical music label. group's classical music label. Mr Emmerson, who will be based at RCA/Ariola's New York headquarters, will report to Mr Elliot Goldman, presi-dent and chief executive of RCA/Ariola. Before running London Artists, Mr Emmerson worked in concert promotion presenting such artists in-Britain as Andrés Segovia, Artur Rubenstein, Sarah Vaughan and Pete Seeger. He also has extensive ex-

M. Parkin, executive vice-

manage Dutch

perience of the professional theatre. This includes stage direction and management of direction and management of the Royal Shakespeare touring company. He founded and directed the Newcastle upon Tyne festival and for eight years ran the Belfast Festival in Northern Ireland.

Financial Times Tuesday August 26 1986

Mr Goldman, announcing the appointment, said: "Michael's appointment, shid. Antiheris extensive experience with and knowledge of classical music and its very special worldwide market made him a natural candidate for the important candidate for the important osition of president of Red

He also has extensive ex-

By Paul Taylor in New York

MR MICHAEL EMMERSON

the president of London Artists, an international artist manage-

California bound

THE ROYAL BANK of Scot-land has appointed Mr James M Stott, deputy manager of its San Francisco agency and rep-

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resentative office. He is succeeded as vice-presi-dent of the bank's New York hranch and representative office by Mr Alexander D. Wilson.



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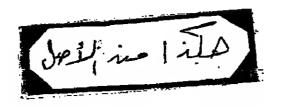
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# WORLD STOCK MARKETS

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|       | Emprunt 4/3 1073 1585'10 NETHERLAND Jacobs Suchard - 6,325 + 25 Asshi Glass  | Indices   |
|       | BUG, nn.       1830       +130         BUG, nn.       1830       +130         BUG, nn.       1830       +130         BUG, nn.       1830       +130         BUG, Garman,       1830       +130         BUG, Garman,       1830       +130         BUG, Garman,       1830       -130         Chub, MacOber,       1800       -150         Chub, MacOber,       1800       +160         Chub, MacOber,       1800       +160         Darry, Law, Alland,       1800       +1  | NEW YORK.tow uses         Aug.  |
| -     | Objecta: 3: 12: 206 791, 781, 781, 781, 781, 781, 781, 78, 78, 78, 78, 78, 78, 78, 78, 78, 78  | Sees Ros       11644.509       d       45% - 1% Schemeds       32% + 3%         ISM       1162.490       133% + 1%       Minn Py       313.302       32% + 3%         ISM       1162.490       133% + 1%       Minn Py       313.302       32% + 3%         First Bank       1023.209       55       - %       Benuficial       903.700       72% - 3%         Bomining 9       1023.400       xd 49% - 1%       Geneid for - 544.500       19% + 5%       544.500       19% + 5%         Advances 521       Declores 1.031       -       -       544.500       1986         IDBONTO       Aug       Aug       Aug       1986       -   |
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| L.    | HAND DELIVERY<br>SERVICE<br>Nursubscription copy of the FINANCIAL TIMES can be hand-delivered<br>to your office in the centre of any of the cities listed above.<br>For details contact: Richard Willis, Tel: 020 239430. Telex: 16527.  | ANTWERP/BRUSSELS/GENT/KORTRUK<br>LEUVEN/LIEGE/LUXEMBOURG<br>Vour subscription copy of the FINANCIAL TIMES can be hand-delivered<br>to your office in the centre of any of the cities listed above.<br>For details contact: Philippe de Norman. Tel: 02 513 2816. Telex: 64219.  |

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|  | NEW YORK STUC  | A EACHANGE CUMPOSITE CLOSING FRICE   |  |
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| 1  | 12 March         P / Six         Due Net         P / Six         Due Net           28 / 130         AAR 5 x 4 1 9 18         1000 Hep Loss         Barb Date Date         P / Six         Due Net         F / S  | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  | Month         P/ Sh         Discussion           is         Low         Stack         Ohr. Yiel. F         1000: High         Low         State Comp.           is         Low         Stack         Ohr. Yiel. F         1000: High         Low         State Comp.           is         Low         Stack         Ohr. Yiel. F         1000: High         Low         State Comp.           is         Low         Stack         State         State Comp.         State Comp.           is         Low         1372         State State         State State State         State State State State State           is         Low         1372         State State State State         State State State         State State           is         Low         1372         State State State         State State         State           is         Low         1.00         State State         State         State         State           is         Low         1.00         State         State         State         State         State         State           is         Liby Liby         1.00         2.3         State         State         State         State         State         State         State   |
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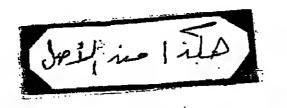
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Financial Times Tuesday August 26 1986 ØØ

**NYSE COMPOSITE CLOSING PRICES** 

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# **FINANCIAL TIMES** WORLD STOCK MARKETS

### WALL STREET

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# **Caution** over **Fed efforts** on economy

الي بن الوالية الجارية فاستحارت حجارها التاريخ الروالية الوالية المتحادثات

US FINANCIAL markets traded cau-tionsly yesterday as Wall Street assessed the implications of the efforts hy the Federal Reserve Board to stimulate a flagging domestic ecooomy, writes Terry Byland in New York

The major stock market indices were depressed by profit-taking in motor, pharmaceutical and chemical stocks. But selling was moderate, and the technology sector remained firm.

After opening sharply lower, stocks rallied at mid-session, only to fall hack to end close to the day's lows. The Dow Jones industrial average ended a net 16.03 points down et 1671.77.

In the credit markets, short-term rates drifted lower, with market analysts, notably Dr Allen Sinai of Shear-

# Stock markets in the UK and Hong Kong were closed yesterday for public holidays.

son Lehman, arguing that the Fed would cut its discount rate again some time this autumn - with or without accompanying action by the other major trading nations

Bond prices, subdued at first by worries over the possible inflationary effects of the Fed's actions, rose sharply towards the close to show gains of <sup>4</sup>/<sub>4</sub> point

Weakness in General Motors, down 5% at \$72%, Merck, \$2 off at \$111%, Du Pont, \$1% off at \$80%, and Procter & Gamble S1¼ off at \$77%, depressed the major indices.

But a Merrill Lynch recommendation for IBM took the stock up \$1% to \$139% in hrisk trading, and some other technology issues also hrightened.

Digital Equipment gained \$1% to \$101, and Burroughs at \$73% added \$% as the Burroughs/Sperry merger came on stream. But Honeywell, still unsettled hy the disclosure that Sperry considered making a hid, eased \$% to \$71.

Wall Street's unhappiness with General Motors was fuelled by the car group's offer of retirement incentives for white-collar workers - it wants to slash this workforce sector by 25 per cent by 1989. But other Detroit car shares also ran into profit-takers. Ford, the most fa-

voured motor stock in recent weeks, was \$% down at \$61%, and Chrysler lost \$% to. S40%

Major airline stocks rose smartly on the news that People Express, the fare cutter, may put its Frontier Airlines unit into bankruptcy law protection, as United's plan to buy Frontier crumhles in the face of negotiations with the pilots' union.

At \$4% People Express was un-changed, but Wall Street's view of the case was revealed in a jump of \$2 to \$55 in United shares.

Other domestic airline issues firmed at this sign of distress among the farecutting rivals, hut Pan Am remained flatat \$5%.

But once again, the market was featured by a number of takeover and special situation stocks.

There was another session of heavy turnover in USX, the former United Steel, the shares dipping \$% to \$19 as the market awaited further comments from Mr Robert Holmes à Court, the Australian entrepreneur who is taking a stake in the steel company.

The most active NYSE stock was ICN Pharmaceuticals, down \$6% at \$21% after adverse comments on the stock and its Virazole drug in the investment press. Two quoted subsidiaries of 1CN also ran into sellers, Viratek tumbling \$18 to \$51 and SP1 Pharmaceuticals \$6% to \$26%.

Also weak was Beneficial Corp, \$% off at \$72% in heavy trade after the board's decision to sell the company was believed to have attracted active interest from a host of major names, ranging from Ford, GM and Chrysler to Manufacturers Hanover and some foreign hanks.

Despite expectations that prime rate would have to be lowered soon, bank stocks remained steady. J. P. Morgan shed \$% to \$92%, but Chase Manhattan at \$42% edged up \$%.

In the credit markets, federal funds climbed to 5% per cent bringing \$1.5hn in customer repurchases by the Fed. Treasury hill rates shaded by two basis points.

### CANADA

WEAKER OILS offset most of the early gains in active Toronto trading.

Total Petroleum North America traded CS% lower at CS25%, Shell Canada dipped CS% to CS21% and Dome Petroleum gave up 5 cents to CS1.25.

Alcan managed a CS% rise to C\$41% as it detailed the Norsk Hydro plan to purchase five European aluminium extrusion plants from the group.

Industrials in Montreal showed the largest declines.

# EUROPE

# **Banks** lead way to fresh peaks

ANOTHER PAIR of records was managed on the European bourses yesterday despite the slower pace of trading induced by the holiday season. European bank shares, however, staged a hroad advance on the hope of lower interest rates.

Brussels edged higher to a new peak in thin trading that reflected the absence of many British investors. The Belgian Stock Exchange index added 0.32 to 3,866.08. Banks and retailers were the firmest sectors as bolding compa-nies and industrials tended mixed.

Merger rumours continued to trigger. demand for UCB, up BFr 20 to BFr 9,030, while Solvay, linked with the UCB speculation in the past, fell BFr 50 to BFr 7.930.

Market bellwether Petrofina slipped BFr 70 to BFr 8,990 on news that its American subsidiary planned a major capital increase through a one-for-10 share offering within the next month. Reserve gave up BFr 40 to BFr 3,090, and FN, the sports goods to arms maker, dipped BFr 30 to BFr 2,080.

Madrid demonstrated a more dynamic run-up to a new peak as the Bourse index rose 2.55 to a record 196.47, mainly on the strength of the hanks and telecommunications sectors.

Particularly active trading boosted Banco Popular 65 percentage points to 1,425 per cent of nominal value, and Vizcaya jumped 40 points to 1,600 per cent. Ten-point gains were registered by both Banco Hispano at 435 per cent and Banco Santander at 780 per cent.

Telefonica led the communications sector higher with its 1½ point advance to 197.25 per cent.

Petroleos was one of the few shares to move against the trend as it shed 2 points to 347.50 per cent.

Frankfurt was dominated by domestic huyers as overseas support evaporated. Speculation persists that the Bundeshank will cut its rates soon, and bank stocks were quick to respond with large gains. The Commerzbank index, heavily weighted with banking constituents, rose 11.2 to 2,102.2,

Commerzbank led the way with a DM 13.50 jump to DM 349.50 ahead of its To-kyo listing presentation, Deutsche Bank

closed DM 4 up at DM 850 and Dresdner at DM 456.50 was DM 2 higher.

Car makers continued to draw support, with BMW up DM 11 at DM 623 while Daimler put on DM 9 to DM 1,315. The bond market was quiet due to the lack of Britisb support and the easier tone in the US credit markets on Friday.

Prices lost up to 10 basis points. Opinion is still sharply divided over Bundesbank intentions on rates.

Many see Thursday's fortnightly meeting of the central bank's policymaking council as the stage for the next cut in the discount rate, currently 3.5 per cent, and the Lombard rate, now at 5.5 per cent. Other observers see early September as the earliest move-

The Bundeshank yesterday bought DM 32.5m worth of domestic paper

Paris recorded its 11th consecutive gain on the conviction that interest rates would fall shortly.

L'Oréal picked up FFr 5 to FFr 3,644 as the cosmetics group detailed a FFr West German companies are expected to float a record volume of new shares

this year after new-issue volume in the first half more than doubled last year's comparable figure, according to Deutsche Bank. Domestic groups issued DM 7.1bn of new shares in the first six months compared with a total DM 9.3bn for all of 1985.

1.4hn capital increase, 60 per cent of which will be allocated to foreign investors.

Amsterdam moved lower in slow trading, and the ANP-CBS General index lost 2.2 to 293.7. Unilever, still in pursuit of Naarden International, fell Fl 2.50 to Fl 515.50 while Fokker lost Fl 1.60 to Fl

Stockholm lost ground. Ericsson, most active, retreated SKr 3 to SKr 231 ahead of results due this week while Electrolux, also active, fell SKr 4 to SKr 305. Atlas Copco shed SKr 10 to SKr 211 on consideration of its slightly firmer half-year statement.

Milan finished mixed, and Zurich was steady.

### SOUTH AFRICA

MODERATE local demand prompted another record in Johannesburg although the closure of the UK market for

a holiday dampened overall activity. Steady support for gold and industrial issues was evident, and the All Gold index jumped 20 points to a record 1,669 while the broader market index peaked

with a 12-point gain to 1.838. Among blue-chip golds Vaal Reefs added R2 to R322, and Buffels at R101 was R1.50 higher.

# TOKYO **Rate hopes** fuel record one-day gain

INSTITUTIONS and individuals were energetic buyers of stock in bectic Tokyo trading which saw the Nikkei market average post its largest-ever singleday upsurge, writes Shigeo Nishiwaki of Jiji Press.

The index rose 432.78 to 18,565.61, recouping more than half the steep loss seen in the previous three trading days. The sharp advance was attributed to expectations of a cut in interest rates and a resultant rise in stock prices.

Large-capital steels, shipbuildings, heavy electricals and power companies drew particularly heavy buying. Domes-tic demand-related issues, trading houses and financial stocks also gained on a broad front.

The market average had chalked up a 505-point upsurge at one stage in the afternoon. Volume shrank from 1.9bn shares on Friday to 1.2bn reflecting a hesitant mood at the start of the session. Gainers outpaced losers 598 to 206, with 117 issues unchanged. The rapid rise in stock prices and a

sharp rally in crude oil prices made in-vestors wary last week, leaving the Nikkei average down 803 points in the three days from Thursday. But yesterday many institutional investors saw a good opportunity to buy, and individual investors followed their lead.

Leading brokerage houses said there was no factor supporting such a sharp rebound and that the active purchases mirrored the massive surplus funds of institutional investors.

Large-capital stocks were at the centre of attention, with institutional investors stepping up their purchases. Trading in the 10 most active issues accounted for as much as 61.7 per cent of the total volume.

Nippon Steel, at the top of the actives. list on 175.24m shares traded, added X20 to Y257, a record high. Kawasaki Steel came second with 173.74m and rose ¥24 to Y264 while Nippon Kokan and Mit-subishi Heavy Industries climbed ¥24 to ¥301 and ¥32 to ¥627, respectively.

Among heavy electricals, Toshiba put on Y21 to Y695. Hitachi and Mitsubishi Electric were each Y10 up at Y1,040 and X505, respectively. Utilities advanced, with Tokyo Elec-

tric Power rising Y340 to Y7,080 and To-kyo Gas Y35 to Y885. Trading houses scored conspicuous gains. Mitsubishi jumped Y80 to Y1,200, Mitsui Y45 to Y783 and C. Itoh Y59 to Y899. Nissho Iwai closed Y70 higher at Y574. Observers noted that these issues were cheaper than large capital stocks.

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Financial stocks and blue chips were higher. Tokio Marine and Fire finished Y120 up at Y1,770, Sumitomo Bank Y160 up at Y2,390 and Nomura Securities Y120 higher at Y3,320. NEC advanced Y80 to Y1,820, JVC Y60 to Y2,440 and Canon Y40 to Y990.

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Kajima moved up Y50 to Y1.160 and Taisei Y30 to Y710 while Mitsubishi Estate added Y80 to Y2,350.

In the bond market, dealers remained on the sidelines, and prices dipped. Although institutional investors and dealers are bullish about the future price trend, sharing the view that Japan and West Germany will carry out concerted interest-rate reductions in September, they apparently decided not to buy ac-tively in view of the fast rise since the

beginning of the month. The yield on the benchmark 6.2 per cent government bond maturing in July 1995 rose from 4.565 per cent on Saturday to 4.575 per cent.

### AUSTRALIA

**RISING DOMESTIC interest rates and** a softer gold price subdued Sydney trading and trimmed 4.2 off the All Ordinaries index to 1,179.1. Turnover slipped to 64m shares compared with Friday's 80.4m.

BHP staged a late rally to finish the day 4 cents cheaper at A\$7.80, after trading at A\$7.66, and Bell Besources retreated 8 cents to A\$5.04 after an early

Banks were under pressure, with ANZ off 7 cents to A\$4.78, National 2 cents to A\$5.34 and Westpac 1 cent to A\$4.65.

Among stronger oils Santos gained 7 cents to A\$3.75.

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### SINGAPORE

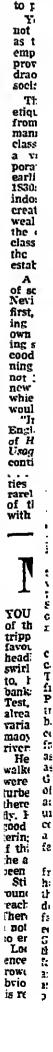
A NERVOUS start to Singapore trading ... was overcome as hive chips rallied in response to the news that Malaysian businessman Tan Koon Swan bad pleaded guilty to charges of abetting in a criminal breach of trust relating to the col-

lapse of Pan-Electric Industries. Long-neglected Malaysian issues were also bought as a result, partly reflecting market sentiment that the Pan-Electric affair was almost over. The Straits Times industrial index added 2.45 to 813.79 on lower volume of 22.4m shares.

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With glass like this, who needs a St. George?



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> Scholt has developed a special type of glass that can stand up to lire for as ong as two hours. Even longer son imes. And it's only 65 mm thick It's called Pyran and it's the ideal fireresisting glass for doors, windows and

> > Fire is a monster. Since time began, men have looked for ways to protect themselves against it. Ordinary window glass is no use. In a fire it breaks and lets the flames spread without anything to hold them back.

Schott tackled this problem by developing a special fire-resisting glass for use in windows. Basically it's what we call a borosilicate glass. But we also toughen it so that it provides protectionagainst lire for as long as two hours. And it stays clear and transparent all that time. Which is quite important when there's a fire. Especially on escape routes,

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But Pyran is only one example of Schott's developments. There isn't a single area of advanced technology that can manage without special plass; space and marine exploration, environmental protection, health-care, energy recovery or biotechnology.

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It you'd like to know more about Pyran fire-resisting glass or any other Schott Group product write to Schott Glass Ltd, Drummond Road, Department FT, Statlord ST16 3EL

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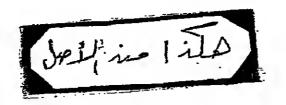
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# **SECTION III** FINANCIAL TIMES SURVEY

# Aerospace

The overall long-term outlook for the world's aerospace industries remains bright, despite severe current problems in some areas, such as airline finances, pressures on some defence budgets, and difficulties with the US space programme.

# Pace likely to accelerate

dustries gather for the hiemial atmospheric vehicle" will have Farnborough Air Show, starting to be taken. next Sunday, in the knowledge that for the rest of this century the pace of their activities is likely to accelerate rather than

While several major billion-dollar civil and military aircraft, engine, guided weapons and space programmes are already under way, and will come to fruition in the years ahead, many other new ones are in the conceptual or early planning stages

As these mature, they will provide massive additional workloads, while also driving the frontiers' of technology further forward.

In the UK alone, several affair. major decisions are pending. For civil aircraft these include participation in the new European Airbus A-330 high-density short-to-medium range and A-340 four-engined long-range transport programmes.

47.55

122.51

In military aviation, full-scale development of the fournation Eurofighter will be sought around the middle of next year, while before then a decision will have to be taken

programmed if it is a more measured pace in the end of this century, if it is to win its share of growing In hellcopiers, future partici-world markets for aerospace pation - in the joint Anglo-products of all kinds. The near-disastrous financial products of all kinds. The first half of this year illus-trates the jossibility of total Western world markets caused by unbridled dcregula-the multi-national European for aerospace and related tion and its consequent fares NH-90 helicopter for the 1990s equipment — civil and military ware which will have to be settled. And aircraft, engines, guided term benefit to the consumer in space, decisions on involve, wanpons, spacecraft and avio but of dubious long-term value ment in such wantimes as the mits - will amount collectively to the stability of the air trans-projected Horizontal Take-Off to some \$1,400hn by the end port industry.

THE WORLD'S aerospace in- and Landing (Hotol) "trans- of this century. Although some arenas, such as civil aviation, are more sen-UK Government financial in-

as civil aviation, are more sen-altive to economic cycles than others, overall the trend in aerospace and related spending is likely to be upwards, the rates varying according to region and short-term develop-ments — although the latter may be of less significance than they may immediately appear. volvement in all these ventures will be such that the scope and style of the Government's man-agement of its investments will also need to be reconsidered. The Commons Defence Committee bas already urged that a Ministerial Aerospace Board should be considered as a means of co-ordinating governthey may immediately appear. The difficulties encountered means of co-ordinating govern- by some airlines on the North ment involvement in aerospace Atlantic routes this summer,.

over-capacity

02

### By Michael Donne, Aerospace Correspondent

and of avoiding future political imbroglios such as that surfor example, through the slackening of US traffic to Europe, is not likely to be a long-term problem, although it may have an immediate impact rounding last winter's Westland Such a board would bave

broad aerospace industry approval, for the kind of dison some airline balance sheets and even slow some rearray experienced last winter does no section of the industry equipment programmes. More significant longer-term any good since it lowers confi-dence in the Government's problems are likely to be the continued ability to handle the industry's complex affairs expeditiously North Atlantic and elsewhere, which can be corrected only by

and efficiently. the airlines themselves exercis-ing tighter control over their All the ventures outlined will be critical to the full exploitaown scheduling, and the need tion of the UK's industry's own for a more measured pace in

wars, which may be of short-term benefit to the consumer but of dubious long-term value

in Western Europe as in the US, where the finances of many alrlines are still weak, which accounts in turn for much of the bostility that pressures for deregulation arouse. That de-regulation is inevitable is becoming more widely accepted, although there is still a considerable way to go. There are still some considerable dif-ferences of view over the paca at which it should be implemented.

Nevertheless, in commercial aviation, all the major manufacturers agree that between now and the end of the century there will be a massive market for jet airliners amounting to more than \$250bn, and account-ing for upwards of 5,500 new aircraft of all kinds.

This is just as much the case

These will be needed both to replace existing ageing fleets and to meet traffic growth. In addition, there will be a major demand for smaller aircraft to meet the growing needs of the commuter and regional aviation sectors.

General aviation, which includes the business aircraft sector as well as the provision of light aircraft for other purposes including leisure flying, has been slower to

expand in recent years. Manufacturers, especially in the US, have been seriously affected by such problems as the increasing costs of product llability insurance, stemming from rapidly-escalating court awards in liability litigation. . This has so inflated the prices

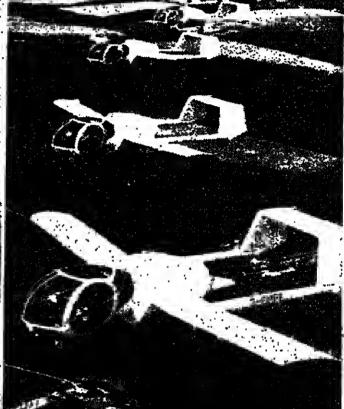
CONTINUED ON PAGE 2



The UKa £180m Experimental Aircraft Program ighter has now made its maid en flight and will be seen a the Famborough Air Show. Its rival, the French Dessault-Breguet Rafale (lef will also appear in the flying display.

Below: The distinctive British-built Optica light surveillance and genera duties aircraft. Production of the Bug-eye, as it is nicknamed, is





# WESTLAND Famous for its European Lynx. (And its European links.)

SECTORS

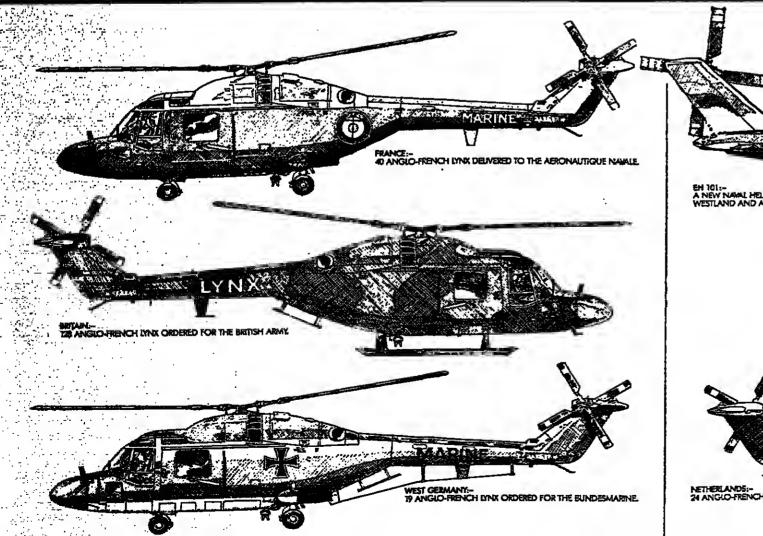
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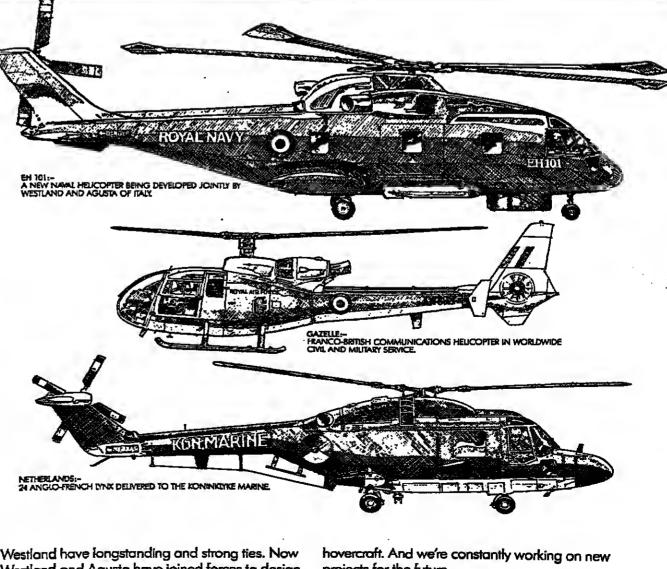
The Airline

Helicopten New shapes Military aircraft

New Techniq

Business aviation





Lynx is the name of ane of the world's most successful helicopters. It's also the result of just one of Westland's highly successful international collaborative ventures.

Over the last nineteen years, Westland have worked with Aerospatiale of France to produce not only the Lynx, but also the Puma and the Gazelle. And that's just one of our international links.

We've been in partnership with Sikorsky, to take onother example, since the Second World War. Out of that pool of expertise and experience have emerged such well-known names as Dragonfly, Wessex, Whirlwind and Sea King. And now we're working together mare closely than ever to produce the new Black Hawk helicopter.

Agusta of Italy are onother company with which

Westland and Agusta have joined forces to design ond build NATO's mojor naval helicopter for the 1990s, the EH101.

CONTENTS

The UK

The US

Italy, The N

India, Ind

COUNTRY BY COUNTRY

Australia, Brazil, Greece,

Westland is working with companies in five European countries on two new helicopter projects, the NH90 and the Light Attock Helicopter. We're involved in advanced airborne technology and

projects for the future.

We call it team technology. And it works.



Π

# Aerospace 2

### Airlines

Bleak outlook as traffic growth slows

# Pace is likely to accelerate

### CONTINUED FROM PAGE 1

of small light aircraft as to driva down sales and threaten the viability of some manufacturers. Legislation to regain some control over this situation is now pending, but it remains a problem that every world aerospace manufacturer of civil aircraft views with concern, especially if he is exporting to

the US, as most are. In military avietion, pressures on some defence budgets, including the UK, have either resulted in, or threaten, some near-term reductions in military aerospece spending, and the possibility of some further constraints, such as more stringent sifting of plans for

new projects, mey emarge. However, in the long-term, overall spending on defence in the non-Communist world seems likely to grow between now and

likely to grow between now and the end of this century. Spending on military aircraft alone is estimated to amount to more than \$500bn over the next to more than \$500bn over the next combat aircraft. New programmes already being initieted in Europe in-clude the Eurofighter between the UK, West Germany, Italy and Spain and the French

and Spain, and the French Rafale with possible collabora-tion from the Netharlands and Belgium and Norway. In the US Advanced Tactical fighters for both the US Air Force and Navy, and an Advanced Technology Bomber (ATB) for the USAF.

Another major expanding acrospace market is avionics, now e multi-billion doller business worldwide. About one-third of the value of all 

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the estat the spearhead for the entire the electronics industry, and the

### ties, and more and more countries are promoting the development of aerospace indus-tries, especially in the Third World, and especially in South East Asia. One of the most significant developments over recent years, and one of which many of these smaller countries are now taking arenas as materials technology and manufacturing techniques.

In space, the tragic disaster to the Challenger Space Shuttle last January has substantially delayed further US manned space flights for commercial and military purposes, and as a result also the eventual develop-ment of the next big US manned space venture, the space spectrum. In commercial aircraft, Airbus Industrie in Western Europe is tha prime Space Station.

With the expenditure of money, energy and time, the US space programme will eventually get hack on track. The US Government decision to build e fourth "Orbiter " Sbuttle national Aero-Engines, building the V-2500 eogine for the Euro-pean A-320 Airbus, is strong evidence of the trend. In military avietion, the forthspacecraft is bound to help in current Tornado combat alrerait also illustrate the trend, while the European Space Agency, the Franco-German Euromissile group, and the Anglo-Italian EH-101 helicopter venture are all excellent examples of what intervisional collaboration i this direction. Space activities are vital for the long-term development of technology across a wide spectrum of aero-space and related activities, and the West as a whole would be damaged by lengthy delays in US space ventures. internetional collaboration in

such as Hermes.

Internetional collaboration in aerospace can achieve. As the costs of individual aerospace projects continue to soar into the multi-billion dollar bracket, collaboration as a means of widening markets and sharing the costs increas-ingly will dominate the world eerospace industry.

eerospaca industry. There bave even been suggestions of much wider Euro-pean-US collaboration, for explans for Ariane, to enable it to launch higger payloads and eventually Europe's own manned space transport vehicles such as Warmag ample between Airhus Industrie and McDonnell Douglas of the US, on the next generation of long-range airlines, as a means While inevitably there will be

ong-range airlines, as a means of reducing competition. Both sides bave played down the significance of their dis-cussions, but the possibility of such collaboration is still there, and over the next few weeks it could well become a live issue once again. some rivalry with the US. in effect those involved in the Western space programmes will also continue to work closely also continue to work causely together — especially, for example, on Space Station, for Europe could never afford such expensive ventures on its own. In all these arenas, the issue once again.

nation's technological capabili-

One of the most significant of all current aerospace develop-ments, which could have far-reaching implications for the future course of civil aerospace manufecturing, is the emerg-ence of the prop-fan as a prime airliner power-plant.

The claims for this concept of propulsion, discussed elsewbare in this survey, are about to be tested in flight by major US aerospace companies. If they are seen to be justified, and prop-fan engines are pushed forward, the turbo-fan (jet) engine as we know it today could face severe competition. This does not suggest that the jet engine is on the way out: far from it, for the massive investments already made or likely to be made in iet. powered alrcraft will ensure their continued use well into The claims for this concept of

And new ways of lying, such as "fly-by-wire," using elec-tronics to control alreraft manoeuvres, with "fly-by-light." the use of fibre optics are oo the way. Outside the major aerospace

technological advances now nations—the US, the Soviet Investments already made or taking place will be just as far- Union, the UK, Western Europe likely to be made in int-reaching in their impact on and Japan—aerospace is being powered alreaft will ensure other industries as those other increasingly recognised as the their continued use well into developments occurring in such fastest method of advancing a the next century.

THE FINANCIAL outlook for the world's airlines is bleaker than at any time since the recession of the early 1980s, advantage has been the growth of international collaboration on a wide variety of aerospace ventures, despite the continuawith traffic growing at a slacker tion of fierce competition. This covers the entire acor rate in many regions, espe on the North Atlantic r but with capacity growing

rapid a rate, so that re yields are declining. example. In ecro-engines, the five-nation consortium, Inter-Earlier this year, Mr G Earlier this year, Mr Gi Eser, director-general of International Air Tran Association, suggested that potentially could be a good in terms of airline indi profitability, if two condi were met: that the dro crude oil prices was passe by the oil companies equivalent reductions in coming Eurofighter and the current Tornado combat aircraft by the oil companies in equivalent reductions in that price of jet fuel, and that capacity increases were in line with projected traffic growth.

Mnre recently, in the light of the first six months' results, Mr Eser was more pessimistic and said that neither of these two conditions had been achieved. As a consequence, it now seemed very unlikely that there would be any improvement over last year.

Indeed, the latest data from members confirms that pros-pects for profitability this year have dropped sharply in the past three months for many carriers. There are exceptions, of course, but in general, the trend is down, though fluid.

"We estimate that, at best, the industry could show a break-even result this year or possibly a marginal profit. At worst, the losses could amount to \$1bn or more."

This contrasts with a system-wida profit by LATA's 144 air-lines is that the windfall nf wida profit by LATA's 144 air-cheaper fuel prices, where they lines last year of \$900m after tax, and profit of \$600m on international scheduled services stemming from over-capacity. alone,

Mr Eser went on to point out that the possibility of profits depended on what savings on fuel costs actually occurred, and on how traffic growth recovered as the summer progressed.

"On the fuel side, while prices have come down sub-stantially in certain highly-competitive supply locations like I London, New York and Paris, on the whole the scale of reduction has been far short of the dron in crude oil prices, of the drop in crude oil prices.

"For example, in the 12 months to the end of May, crude oil prices fell by about 55 per cent. Jet fuel prices, however, as reported by members to us, showed an average reduction of

World total international and domestic revenue traffic (Scheduled services of airlines of ICAO Contracting States)

| routes,<br>g at too<br>evenue  |  | Pa:   | Annual<br>Annual<br>Increase<br>(%)                                   | Passen;<br>en  | ger-km<br>Annual<br>Increase<br>(%)   | Freigi  | Annua i<br>Annua i<br>Increase<br>(%)                                | Freight 1<br>—perfo  | Annual<br>Hacrosse<br>(%)  | -Meil to<br>perfit   | Annuel<br>increase<br>(%)                                   | - Total te<br>perfo   | Annusi<br>Increase<br>(%)   |
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| Gunter<br>of the<br>ansport<br>at 1986<br>od year<br>ndustry<br>iditions<br>rop in<br>seed on<br>es in<br>in tha | 1976<br>1977<br>1978<br>1979<br>1980<br>1981<br>1982<br>1983<br>1983<br>1984 | 610<br>679<br>754<br>748<br>752<br>764<br>795<br>841<br>891 | 7.9<br>5.9<br>11.2<br>11.1<br>-0.8<br>0.5<br>1.6<br>4.0<br>5.8<br>6.0 | 764,000<br>818,000<br>936,000<br>1,060,000<br>1,089,000<br>1,119,000<br>1,142,000<br>1,187,000<br>1,271,000<br>1,260,000 | 9.5<br>7.2<br>14.4<br>18.2<br>2.7<br>2.7<br>2.7<br>2.0<br>3.9<br>7.1<br>7.0 | 9.8<br>10.0<br>10.6<br>11.0<br>11.1<br>10.9<br>11.6<br>12.1<br>13.3<br>13.2 | 7.5<br>7.6<br>5.7<br>3.5<br>0.8<br>-1.6<br>6.9<br>5.4<br>9.0<br>-0.7 | 21,540<br>23,630<br>25,940<br>28,016<br>29,380<br>30,880<br>31,549<br>34,960<br>39,488<br>39,310 | 11.2<br>9.7<br>9.8<br>8.0<br>4.9<br>5.1<br>2.1<br>10.8<br>12.9<br>-0.4 | 3,630<br>3,180<br>3,270<br>3,420<br>3,680<br>3,800<br>3,800<br>4,010<br>4,300<br>4,340 | 4.5<br>4.8<br>4.9<br>7.5<br>3.1<br>2.1<br>3.4<br>7.3<br>0.9 | <b>33,260</b><br>100,440<br>113,540<br>126,860<br>130,980<br>135,490<br>135,490<br>138,400<br>145,960<br>158,310<br>166,570 | 10.9<br>7.7<br>12.0<br>11.7<br>3.3<br>3.4<br>2.1<br>5.5<br>8.5<br>5.2 |
|  | Source   | : ICA   | <b>.</b>  |  |   |   |  |  |  |  |   |   |   |

US-

traffic growth.

leasing in one form or another, which could provide a cheaper

option than making direct loans through banks and other

financing institutions. The merits of direct procurement,

only some 20 per cent for the same 12 month period. "We expect there are still some further savings to come in certain markets which usually react slowly in passing on such reductions, such as Japan." On the capacity side, air-"Stay in America" holidays, all combined to denress US

combined to depress originating Atlantic traffic. lines bave continued to put more seats nnto many routes Efforts by the UK and Euroespecially the North Atlantic Enorts by the UK and Euro-pean governments, airlines and travel trade have been only partially successful. While by mid-July there were reports of an upturn in bookings on the North Atlantic, they could not compensate for the damage already done to airlines' balance sheets in the early summer despite the sharp slackening in traffic growth. Mr Mike Brown, assistant director of manegement information at IATA, bas said that "the gap between capacity and demand is continuing to grow at a high rate, particularly on the Atlantic, where capacity from Nnrth Amarican carriers alone has grown by 20.8 per cent."

sheets in the early summer months, and at best airlines will show reduced profits for the summer if not actual losses. The danger facing the air-lines is that the windfall nf cheaper fuel prices, where they The impact could be serious

for some airlines, which depend on summer profits to see them through the bleaker winter months and to produce overall stemming from over-capacity. "If yield dips by ona per profits for the financial year,

For example, without this summer income, British Air-ways, in its run-up to privatis-ation, could be in some difficentage point (industry-wide) profit levels will drop by \$400m." Mr Brown says. Look-ing further ahead, 1987 could culty. Its 1985-86 balance sbeet be a little better, but not much. showed that in the second six months to end-March, it only broke even, so that its overall In Mr Brown'a view: "Most carriers will break even, but they will he the lucky ones."

profit for the year was due entirely to the profits it earned has shown more optimism, with Mr Colin Marshall, chief executive, reporting that " there revenues. British Airways earns have been a number of indi-cations from around the world that the worst may be over, and that our business is returnabout a quarter of its revenues from North Atlantic operations. British Caledonian over 30 per cent and Virgin Atlantic close to 100 per cent.

ing to normal." In the early summer, the Although in the short-term

in the summer of 1985.

However, in recent weeks BA.

GPA Group of Shannon for over 100 jet airliners from Booing and McDonnell Douglas,

years ahead that fewer and fewer airlines will resort to buying aircraft, with the attendant heavy burdens of interest on loans from banks and other financing institutions, and other financing institutions,

It is this longer-term traffic expansion that the world's aircraft manufacturers have in mind when they make their assessments of fleet expansion, amounting to outlays upwards of \$250bn on new jets by the end of the century, for upwards of 5,500 sircraft, both to meet fleet replacements as well as operating profits before interest of at least 7.5 per cent which, Paying for all this equipment, however, could be one of the biggest headaches for airline

Der cent. 1.1

managements for many years. The IATA view is that the air-The airlines are currently not earning that level of profit. In fact, as LATA says, their return-on investment and turnover is totally inadequate for the massive re-equipment. pro-gramme before them. Many line industry's profits just will not permit reequipment on the scala that the manufacturers-themselves seem to think will occur, and that the airlines themselves recognise must occur as more and more existsirlines are already over borrowed, and will face increase ing aircraft become both fuel-inefficient and too expensive to maintain through sheer age. ing difficulties in finding addi-tional finance to meet their needs. The alternative to direct procurement seems likely to be

Leasing, rather than buying, is now probably the only way out of their problems unless ia their governments come to their aid with preferential loans.

Financial Times Tuesday August 26 1986

ding fleet requirements for jets that in themselves became over more costly (one new Boning 747 jumbo can now cost well: over \$100m) is one of the major recent developments in the acrospace industry.

with associated heavy interest

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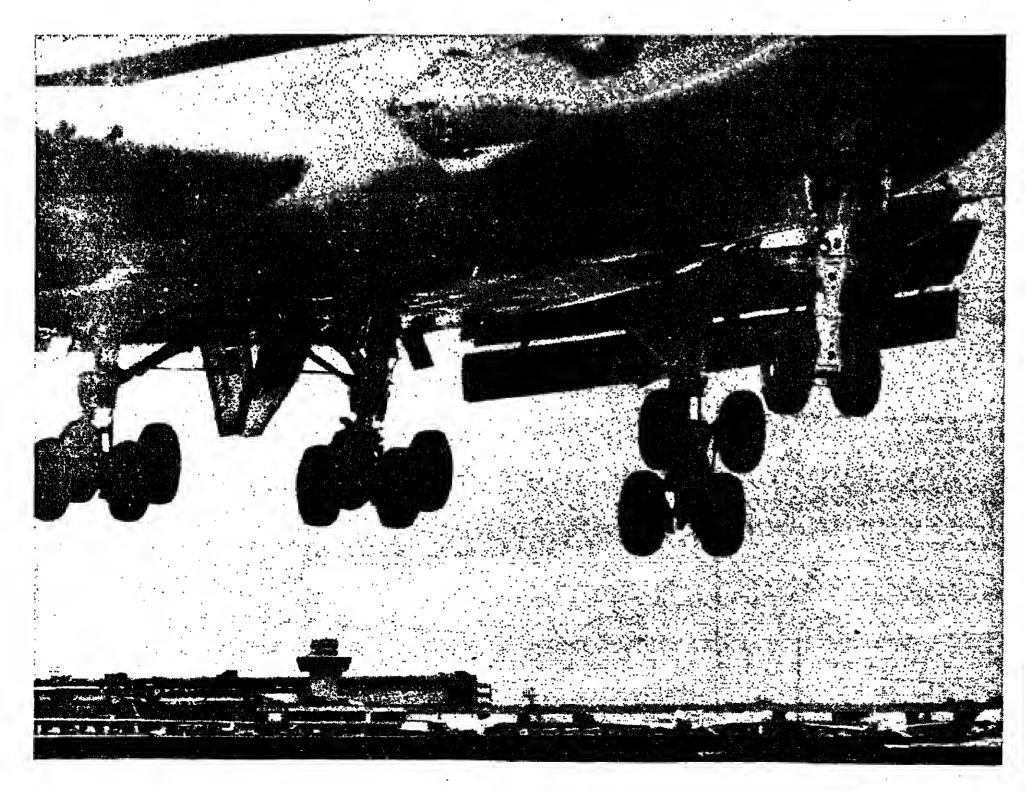
acrospace inclusivy. In some cases, these leading organisations have grown in large and powerful that they can place some of the higgest orders ever seen for new alreraft—one example being the recent \$2.75bn order by the

It seems likely through the 5 per cent annually of the immediate past, and it still immediate past, and it still seems likely that short of any unforescen economic or other disasters, the level of some S91m passengers carried world-wide (including the Soviet Union and China) during 1985 will double by the end of the century, if not before.

and other financing institutions, and will turn more to leasing. Debt repayments by the sirlings have been increasing, from around \$1bn in 1980, to reach \$1.7bn in 1984 and \$1.6bh in 1985, with a comparable figure likely for the current year. It has been estimated by the IATA that, depending on the rate at which traffic grows, the IATA member airlines alone will need to invest between

will need to invest between \$150bn and \$200bn in new. equipment over the next decade, which in turn indicates that they will need to earn average

allowing for tax, rises to 10,5



### Today's high volume of air-traffic may be shrinking the world but it's increasing the challenge facing air-traffic control.

A challenge the Cossor Monopulse SSR system is uniquely qualified to meet:

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bearing accuracy obtained with the Cossor Monop Left: An sircraft track obtained by conventional SSF Right: The same track obtained by

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# **Cossor Monopulse SSR now brings you down** safely in four continents.

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Aerospace 3

### Airliners

# **Re-equipment tide flows strongly**

World Market for Jet Airliners (to 2000)

THE WORLD'S major airliner manufacturers are having a good year, as airlines progres-sively either phase out existing ageing fleets and acquire replacement incraft, or re-equip to meet the substantial traffic growth anticipated between now and the and of the contury. and the end of the century.

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This re-equipment tide is flowing despite some airlines' nowing despite some airlines' cash difficulties stemming from currently poor financial results. But the fact that they are still able, and anxious, to acquire new equipment indicates both their own determination not to be left behind by the competi-tion, and the confidence of the leading institutions in the air transport industry's inneterm ort industry's long-term. viability.

Boeing, the world's biggest Boeing, the world's biggest airliner manufacturer, logged new firm orders for 242 aircraft in the first six months of this year, worth \$12.6bn, compared with last year's first six months' total of 77 aircraft, and the full 1985 total of 390, worth \$14.96bn

Both Airbus and McDonnell Both Airons and marconnan Douglas, Boeing's rivals, have also done well, while there has also been a steady inflow for smaller, commuter and regional types of alrihers, such as the SAAB 340, now being delivered, and the new Fokker F-100 and F-50, which is under develop-

me With the second half of the year, customarily a stronger period for new orders than the first half, and with many air-lines currently known to be year, customarity a stronger regional artificers stantional to This growth, the makers be-lieve, together with the increas-lines currently known to be negotiating major new commit-ments, it seems likely that for current financial problems for for new aircraft.

000 2000-1000-\$246 billon Long Range INCT-USAL US Airline Freighter 155-3bs ė. 80 **Commercial Airplane Compan** 

the whole of 1986, the manufac-turers cumulatively will match, if not exceed, last year's total of 682 new jet airliners alone firmly ordered, worth about with orders for turbo-er commuter and propeller

regional airliners soditional to these.

Boeing, for example, believes that between now and the year 2000, the airlines will speed up to \$245hn on new jets, of which \$172bn will be for traffic growth, and \$74bn for replacements. Boeing bases these estimates

on a world average annual passenger traffic growth rate of about 5.5 per cent over that period. It puts the number of aircraft involved at about 5,555 jets, which after allowing for retirements of 2,920 means a net gain of 2,740 jets from the end-1935 fleet total of 6,590 to a total of 9,430.

McDonnell Donglas suggests that up to the end of the cen-tury, a total of about 5,435 new jet airliners will be needed, worth about \$250bn, and it also believes that passenger traffic will grow by an average of about 6.3 per cent a year.

about 6.3 per cent a year. Airbus Industrie, whose fore-casts run to the year 2005, suggests a more optimistic total of close to 9,000 new jet airliners, which, after discount-ing existing orders and fleet retirements means a total jet fleet by that time of some 7,850 aircraft. It also bases its forecasts on a broed average annual passenger traffic growth some airlines and some shortforecasts on a state of the sector of the sector of about 5.5 per cent a year. To meet these forecasts, all have been built and 429 f the "big three" jet airliner ordered, but this group is now j builders now bave major new offering the world's airlines an f programmes under way, to advanced technology derivative meet different sectors of the called the MD-11, also a trijet. Douglas is now canvassing launch customers, and bores to term difficulties with traffic on some routes (such as this past summer's shortfall on the North Atlantic as a result of US visitors staying away from Western Europe). This growth, the makers be-

scale, Boeing is now selling to airlines worldwide the latest version of its 747 Jumbo, the

Interior of the Fokker F-100 incorporates the most up-to-date ideas on cabin comfort

very long-range Series 400, of both aircraft down sufficiently under US anti-trust laws, col- --- such as reductions in fuel although it also continues to to enable it to compete fiercely laborate with Boeing, and there consumption of up to 40 per offer the stretched upper deck with Boeing and McDonnell are strong precedents for such cent compared with current

Here, too, Airbus is looking for launch customers, and bopes to be able formally to launch both these new ventures around the turn of this year.

Earlier this summer, at the Hanover air show, there were suggestions that Airbus and Douglas might collaborate in the development of a joint A-340/MD-11 type of aircraft for the long-range routes. But although it was not denied that there had been some discus-sions, their significance was played down by both sides.

It is possible that such notions may be revived at the forth-

and common wings and systems, Airbus believes that it can keep the overall development costs

generation turbo-fan engines, collaboration-international Boeing itself bas a 25 per cent equity stake from the Japanese acrospace industry in its new 7J7 prop-fan transport, and actively seeks overseas partners on all its other transport air-

on all its other transport air-craft programmes. This will not mean the end of the jet engine as we know the bong-range market it, however. The massive invest-market is a ferment of activity. of this century in such jet Airbus is pressing ahead stater twin-engined aircraft, which is competing directly with Boeing's own 737-400 and A:330 and A:340, are not likely to be thrown overboard. which is competing directly with Boeing's own 737-400 and 737-300, and the McDonnell Donglas MD-80 series of twinjets.

Coming along for the early 1990s is the new Boeing 7J7 twin-engined 150-seat prop-fan airliner, using the revolutionary new power-plants discussed elsewhere in this survey, and the smaller Douglas MD-91X, ment costs, and widen their ultimate markets, and offer formidable competition to

also a prop-fan but designed for the smaller but equally large market for aircraft seat-ing 100 to 110 passengers.

While Airbus and McDonnell Douglas are still prepared to go it alone on their respective large market for commuter and regional transports currently dominated by conventional turbo-propeller airliners. ventures, it clearly would make economic sense for them to col-

laborate and thus avoid split-ting the market three ways for Just how far this prop-fan these long-range, lower-density revolution will eventually go aircraft, to the detriment of all. remains to be seen. But if the McDonnell Douglas cannot, claims now being made for it revolution will eventually go

lower noise, and less pollution — are proved, it seems clear that the jet engine will bave a serious rival through the 1990s and into the next century. This will not mean the end

to be thrown overboard.

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While all the major jet airliner builders will be bound to explore the possibilities of the prop-fans, and st some stage in the future may even offer variants of their existing jet aircraft with prop-fan engines, the jet airliners now under development today will remain in service for as much

ang 100 to 110 passengers. Below these, there are ideas for smaller prop-fan airliners from such manufacturers as Measerschmitt - Bolkow - Blohm and Dornier of West Germany. lays.

The pressures on airlines to convert to prop-fans will be immense, and the rivalry between the two types of propulsion will be formidable indeed.



Boeing's latest Jumbo, the very long range 747-400 now ordered by British Airways

Series 300 and the popular Series 200. Boeing now domin-ates the long-range airliner market, with searly 730 747e of all types ordered, and more than 640 delivered. Douglas.

Competition comes from the Douglas Aircraft Division of McDonnell Douglas, with its tri-

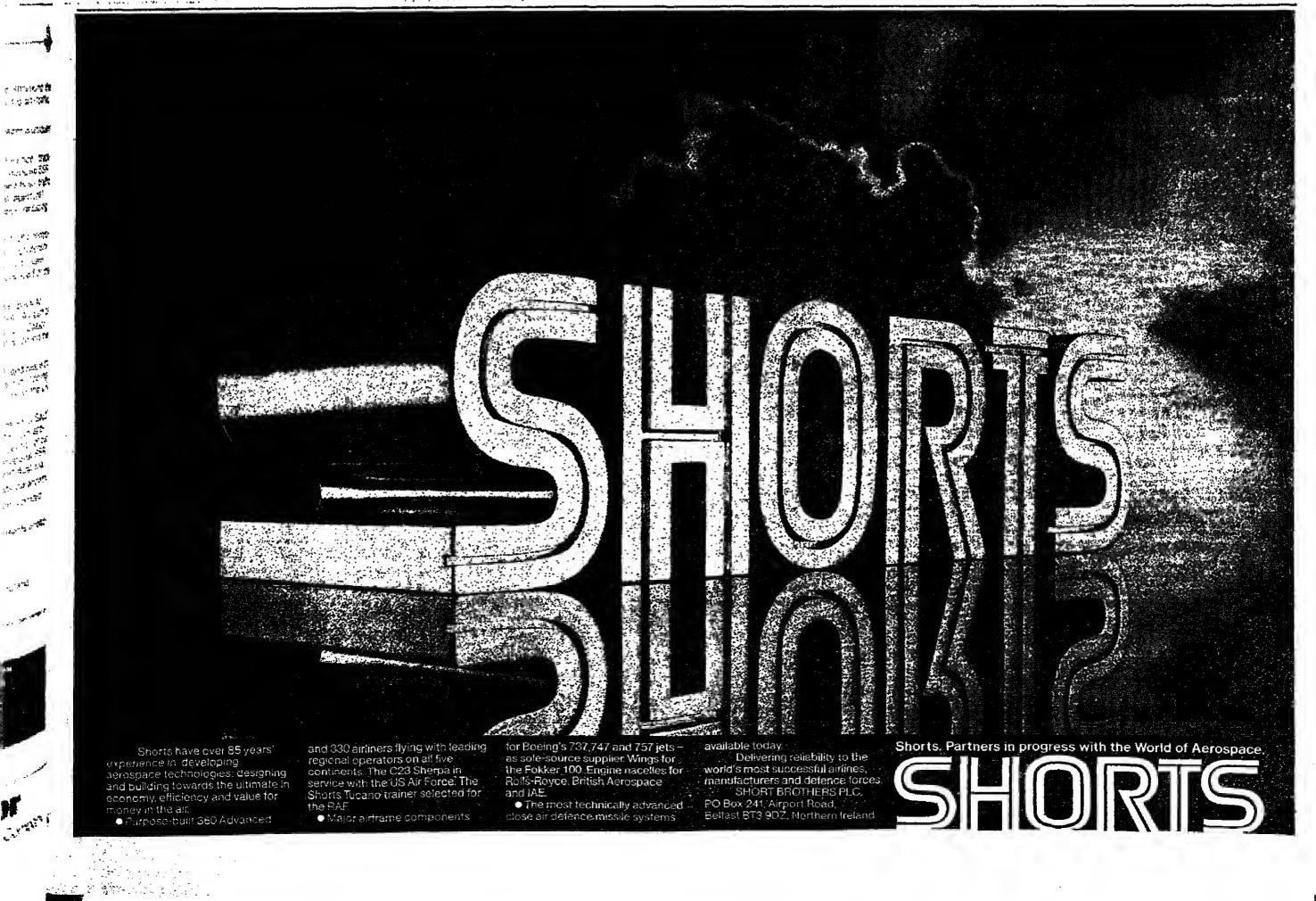
launch customers, and bopes to be able formally to launch the MD-11 into production around the turn of this year.

he turn of this year. Airbus is also now planning o enter the long-range airliner market, but with an aircraft of maller capacity than either the coming Farnborough Air Show, and there is little doubt that collaboration of such a nature would benefit both companies. This would ease their developto enter the long-range airliner market, but with an aircraft of

Accordingly, it is offering the airlines its new A-340 design, a plan for a 260-310 passenger four-engined Airbus that will be built alongside another new venture, the A-330, a twin-engined, short-to-medium range aircraft, also seating about 260 to 310, seconding to configurations used.

smaller capacity than either the Boeing 747 or the Douglas MD-11. Airbus believes there are many routes worldwide that need long-distance transport but do not have the traffic den-sities to justify the use of such Boeing. The latter has plans of its own for a "long/thin" route aircraft—a new derivative of big jets as 747s or MD-11s. the 747, called the ADV or Advanced Development Variant, capable of flying up to 7,000 nautical miles with about 300 passengers.

By using a common fuselage



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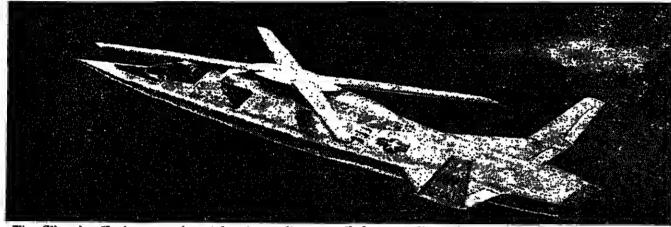
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### Aerospace 4



The Westland Lynx 3 helicopter set a new world helicopter speed record of 249.10 mph earlier this month, beating the previous record of 228 mph held by the Soviet Union



The Sikorsky X-wing experimental rotor-craft was rolled out earlier this month in the US. The artist's conception shows how an eventual adaptation of the concept to a fighter aircraft may look



### Helicopters

# Costs cut through collaboration

DESPITE difficulties in world markets stemming from a short-term decline in civilian orders, especially from offshore oil customers, and a hiatus in military buying while major new pro-grammes ere established, parti-cularly in the US, the long-term prospects for bellcopters remain bright. work

The exceptional versatility of this type of aircraft guarantees that between now and the end of the century it will remain in demand However the high demand. However, the high costs of development and manu-fecture are already ensuring that the major new programmes now evolving are essentially col-laborative, both on an inter-company basis (as in the US) and on a wider international basis (especially in evidence in Western Furme) Western Europe).

This collaboration is designed to damp down to some extent the over-capacity problems that have bedevilled the helicopter industry in recent years, giving rise to fierce competition for ales

Even so, it seems likely that the battles for world markets will be undiminished in ferocity, will be undiminished in farocity, and all eight major manufac-turers — Bell, Boeing-Vertol, Sikorsky and McDonnell Douglas in the US, Westland in the UK, Agusta in Italy, Aerospatiale in France and Messerschmitt-Bolkow-Blohm in West Germany —will be operating from now on in a much tougher environ-ment ment

So far as Westland is con-cerned, following the financial reconstruction earlier this year Fiat of Italy acquired financial stakes in the company, the task is now to rebuild its industrial

programme with aircraft cur-rently being supplied to India for anti-submarine warfare The company's biggest ven-

will be rolled out in December, with a first flight next spring. Nine flying prototypes are to be built, and eventually some 800 aircraft are envisaged. Costs could be as high as £650m for joint development, and £850m for UK production alone. The EH-101 — designed for all-weather day and night opere-tions in a wide range of anti-submarine, anti-surface ship, search and rescue, replenish-ment, airborne early warning and electronic counter-measures roles — has long endurance and The fact is that, despite the financial and political difficul-ties of the latter part of 1985 and early into 1986, Westland has survived as a manufactur-ing entity in the world helicop-ter industry. Its present man-agement intends that it will stay roles — has long endurance and can operate from both land and in that league. It is justified in that view in

an operate from both and and ship-borne bases. The civil market is regarded as especially important for the EH-101, primarily with operaits estimates of future world helicopter markets. Despite difficulties in the past few

The battle for world markets by the eight leading makers is undiminished in ferocity

light naval helicopter for general-purpose duties. The Sea King itself, one of Westland's mainstays in recent years, is also still an active national European multi-role belicopter, the NH-90, for the 1990s, if that venture matures. So far, it is only in the feasi-bility study stages, between the UK, France, West Germany, Italy and Holland, and no deci-sions to go further into project definition have yet been taken. But it could yet prove to be a major project for the 1990s. The company's biggest ven-ture for the immediate future, bowever, is the EH-101, deve-loped under the international agreement with Agusta of Italy through the jointly-owned EH Industries. The first EH-101 will be rolled out in December, with a dest flict uset surface.

major project for the 1990s. Also, Westland is involved with Agusta of Italy on the plan to develop a new Light Attack Helicopter (LAH), from the current Agusta A-129 Mangusta helicopter, probably with the participation also of Holland and

the contract, there is every prospect of some LHX work coming to Westland in the UK The Rolls-Royce/Turbomeca RTM-322 engine already men-tioned represents a major hid to win massive engine markets in helicopters both at boths and

Financial Times Tuesday August 26 1986

Flight trials of this engine (which could also be adapted to other uses) began earlier this summer in a Sikorsky S-70C air-craft, the civil variant of the US

military Black Hawk. Potential applications for the RTM-322 include both the US RTM-322 include both the US Black Hawk and Sea Hawk hell, copters now in service with the US armed forces, the Angle-Italian EH-101, the Westland 30, the prospective European NH-60 Nato helicopter for tactical transport and other duties, and a single-engined version of the Italian Agusta A-129 for anti-tank and other roles.

The RTM-322 programme is funded by Rolls-Royce and Turbomeca, with support from both the UK and French Govern-

menus. The RTM-322 engine is also a possible candidate for re-engin-ing the McDonnell Douglas AH-64 Apache helicopter, now used extensively by the US Army. This engine # its beautifully." into the AH-64, according to McDonnell Douglas Helicopters and would increase

Among other major helicopter developments that could trans form the future of rotary winged flight is the recent US Naval Air Systems Command decision to place a \$1.7bn seven-year con-

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International, Singer, TRW Military Electronics Division, Hamilton Standard and Westing.

house Defence and Electronics The Bell/McDonnell Dougla

team includes Honeywell,

### Aerospace 5

### New shapes

# Planning for the Mach 5 airliner

WITH CONCORDE now well into its eleventh year of regular scheduled supersonic air services, and likely to last until the end of this century and well into the next, there have here for momentions for have been few suggestions for the development of a possible direct successor

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A HISTORY

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Although from time to time designs of potential "Mark Two" Concordes have emerged spatiala of France, one of the original Concorde manufacturing partners — the potentially high costs involved coupled with the limited market, have deterred governments, aerospace manufacturers and air-lines alike from committing themselves to such a develop-

ment. Now, it seems likely that the trend of research into very high-speed aircraft on both sides of the Atlantic could accelerate, to the point where a hig leap forward is made. This would by pass any second-generation supersonic airliner, and move instead directly to a new type of even faster "hypersonic " aircraft-that is, capable of flying et more than five times the speed of sound (Mach 5, or nearly 3,400 mph), against Con-corde's twice the speed of sound (Mach 2, or about 1,200 mph).

Such aircraft would fly so high (well over 100,000 feet) that they would be close to the fringes of the Earth's atmosphere. From such hypersonic transports, it would not be dif-

effectively would be "eerospace planes" or "transatmospheric vehicles," that could not only be used as transports but also as workhorses in orbit, for suras worknorses in orbit, for sur-veillance or even satellite launching, while still using run-ways for taking off and landing like conventional aircraft. Current research is involved with both forms of vehicle — hypersonic and trans-stmeenbarie

atmospheric

In the UK it is concentrated on the "Hotol"—for Horizontal Take-Off and Landing—a true transatmospharic vehicle, detransatmospharic vehicle, de-be unmanned, the current aircraft but also to soar into bilities of a manned variant, orbit like a spacecraft. In the US, although research

for a long time was widely spread, covering not only hyper-sonic transport ideas hut also transatmospheric vehicles, it has now been officially focused on hypersonic transports through the National Aerospace Plane (NASP) concept.

This, however, could even-tually devolve into a family of vehicles, including a true trans-atmospheric vehicle for reduc-ing the costs of putting space-craft payloads into low-Earth orbit hy the end of this century lts at cheaper rates than the cur-rent Space Shuttle can provide.

As the US Defence Depart-ment has stated: "If the new research programme is success-ful in demonstrating the ssary technologies, an en-24 degrees. tirely new family of aerospace vehicles will be possible, able to cruise within the upper atmosphere at hypersonic speeds, or ascend directly into

very large reductions in the operating beight of about 300 operating beight of about 300 operating beight of about 300 "proof of concept" studies is not revealed. But at the end of the first six months of these orbit would be about 50 bours, with position and altitude 5750,000 shared by the Government through the British Aerospace and Rolls- changes being made by an ment of Trade and Industry, is a tubular-looking design for a spaceraft that could take off to mormal runways, boost itself into near-earth orbit to perform various missions in space, such as satellite launch in the disc, such as satellite launch.
d Although initially intended to be an its unmanned configuration, how include the possi- bilities of a manned variant, with a pressurised cabin re- nlacing the cargo hay.

with a pressurised cabin re-placing the cargo bay. in the manned configuration, the crew would he in command,

the crew would he in command, as with the Space Shuttle. It is claimed that Hotol will reduce the costs of putting payloads into low Earth orbit by a factor of five, and could as much as halve the costs of putting payloads into higher The Hotol would be fuelled for flight in space by liquid hydrogen and liquid oxygen, although air-breathing engloss would also be used for its con-ventional take-off and landing roles. Because the Hotol is currently tha subject of Govern-mant-funded "proof-of-concept" studies, details of its design and orbits, such as those that geosynchronous satellites (for telecommunications example, telecommunic satellites) normaily use, power-plants are not

revealed, although the latter are claimed to he far in advance of This economy of operation, coupled with quick reaction and a rapid turnround capability, will enable Hotol to compete anything yet ettempted. It is suggested that Hotol would have a take-off speed of realistically for about 75 per about 290 knots after a runway ceot of the commercial market for launch capability from the year 2000 onwards.

anon 250 knots after a runway roll of about 7,500 ft. The vehicle would be flying super-sonically after two minutes, with an angle of climh of about Moreover, it is also claimed that because the Hotol technology is forward-looking, with It would be clear of commercial air traffic after 4.5 ample potential for develop-ment heyond the cheap and transports, it would not be dif-ficult to develop aircraft that would have the capability of entering low-Earth orbit on ballistic style trajectories to from that in turn it would be feasible to develop what

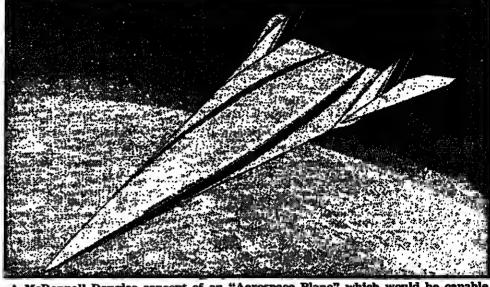
be unduly expensive, further development studies would probably be authorised. Event nally, however, it seems likely that international collabora-

that international collabora-tion on the venture will be sought, primarily in Western Europe where thare is already considerable interest in it. In West Germany, studies into possible future hypersonic flight research vehicles have also heen initiated, with e view to determining whether these provide alternatives to the development of the French-inspired Hermes manned re-usable spacecraft, planned for usable spacecraft, planned for launch in 1995, which is similar to but smaller than the US Space Shuttle's Orbiter spacecraft.

One such study is by Messer-schmitt - Bulkow - Blohm and ERNO, called Horus (a manned EKNO, called Horns (a manned hat pilotless Hypersonic Orbital Research and Utilisation System), which would be larger than Hermes. Both Hermes and Horus are in-tended for Isunch aboard the advanced European Ariane 5

Whether Hermes and Horus are overtaken by Hotol, or all these Ideas come together into one transatmospheric vehicle or "aerospaca plane" remains to be seen. But what is clear is that not all of these ideas can be financed in Western Europe, and that the UK could never go ahead with Hotol alone. At go anead with fibel abole. At some stage in the near future, a major dehate on which ven-ture goes ahead in Western Europe, and with whom, must OCCUT.

In the US, work has begun on tha X-31 National Aero-space Plane (NASP); a pro-ject for a hypersonic (over Mach 5, or nearly 3,400 mph) vehicle for service around the end of this century, that would be capable of both military and commerical operations.



A McDonnell Douglas concept of an "Aerospace Plane" which would be capable of flying at five times the speed of sound, or nearly 3,400 mph, by the year 2000, if current US ambitions are fulfilled

technology validation phase now

a design competition to produce just two or three airframe conand engine companies, worth about \$500m over a 42-month

about \$500m over a 42-month period, for what is called "key technology validation." A joint office bas been estab-lished by the Defence Advanced Research Projects Agency (DARPA), in conjunction with the US Air Force and US Navy and NASA, at Wright-Patterson Air Force Base, Ohio, to manage the programme, in which the US Strategic Defance Initiative Organisation is also

Initiative Organisation is also involved. Ganeral Electric and Pratt and Whitney, the two main US acro-engine companies, have received contracts worth about \$175m each to study air-breath-

still function. Aerojet Tech-Systems will be associated with General Electric in the venture. Other forms of propulsion, using liquid oxygen and liquid hydrogen, for example, will also be studied for possible eventual use in an orbital flight vehicle,

although much work has already been done in this field over many years in the existing US space programme, especially in the development of the Space Shuttle,

Airframe companies gaining contracts worth about \$32m each are Boeing, General Dyna-mics, Lockheed, McDonnell Douglas and Rockwell International.

One is McDonnell Douglas, which earlier this year told the In the initial phase, the They will study configuration One is McDonnell Douglas, Department of Defence and the designs, and the technology re-which earlier this year told the National Aeronautics and Space quired to develop them. At a Senate sub-committee on

nozzles.

already

individual ideas.

Administration bave awarded later stage, these companies will science, technology and space seven contracts to US aerospace be reduced in number through that the NASP programme and engine companies, worth a design competition to produce could result in a transport airtractors for the next phase of than five times tha speed of the programme. Sound, serving both commer-The latter, probably starting cial and military transport about 1990, will involve em-purposes.

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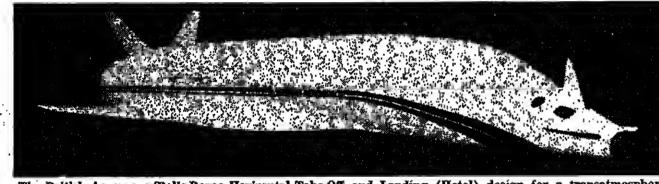
about 1990, will involve em-bodying the technological know-ledge gained in the current phase into an experimental flight-test vehicle, by about 1993, before any final develop-ment of a full-scala hypersonic "aerospace plane" begins. The NASP programme is thus still only in its very earliest exploratory stages, with no Mr Roger D. Schaufele, vice-president of engineering for the Donglas Aircraft Division, said such a transport, burning said such a transport, burning methane fuel and using convan-tional runways for take-off and landing, could carry up to 305 passengera over distances of 6,500 nautical miles, cruising at more than 3,000 mpb at heights of over 100,000 feet and hring-ing Sydney to within two and a half hours of Los Angeles, or Washington within two and a half hours of Tokyo. Such vehicles could also eventually be used for work in space, delivering payloads such as satellites at much lower exploratory stages, with no clear-cut conclusions as to how any vehicle will eventually look, or precisely what tasks it will eventually perform, or how. That is what the 42 months'

starting intends to clarify. Mr Robert C. Duncan, direc-tor of the DARPA told a US Congressional sub-committee on as satellites at much lower costs than the existing manned aviation earlier this summer Space Shnttle transport system.

It has been repeatedly stressed in the US that tha NASP programme is tha key "to regaining the substantial that the NASP programme was aimed at producing a vehicle that had a "highly integrated engine and aircraft structure." a high-temperature metallic structure designed for many flights, a large, highly-streamlined fuselage with integral fual tanks, and multiple engines and exhaust norrise lead in aerospace once enjoyed hy the US" — a reference to US concern at the way in which Western Europe has developed its aerospace potential in recent years.

It is also a reference to the Until the manufacturers proconcern now felt in the US at the way in which the Soviet duce their various designs of the projected NASP, few other Union has developed a substan-tial space industry, and is now details of its size or capabilities are likely to emerge. But some in a position to hulld up a commanding lead in manned spaceflight following the recent of the manufacturers have already given their own problems with tha US Space Shuttle.

**Michael Donne** 



The British Aerospace/Rolls-Royce Horizontal Take-Off and Landing (Hotol) design for a transatmospheric vehicle is now being studied under a joint financing venture with the Department of Trade and Industry

advanced European Ariane 5 ing supersonic comhustion lanncher rocket, hut both would ram-jet engines, capable of land back at hase like aircraft. powering the transatmospheric Whether Hermes and Horus vehicle at very high speeds are overtaken by Hotol, or all while at sub-orbital heights, these Ideas come together into one transatmospheric Vehicle of child founding Angeles Can

# It won't be hard to find the most advanced jetliner at Farnborough.

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### Military aircraft

# Big budget projects beat the curbs

mount to more than \$500bn. aerospace enhances any nation's Despite pressures on defence technological base, but also be-

spending in some countries, the cause such industries can now budgets on both sides of the often be developed through off-Atlantic will be dominated by set deals on military aircraft some multi-billion dollar pro- purchases. grammes for combat aircraft, strategic bombers and trans-ports, some of which have already begun.

Collectively these will spearhead new advanced technological developments in such areas as msterials, production methods, design techniques and even new ways of flying, that will bava a major spin-off in commercial aircraft manufacmay also participate. ture, and give the aerospsce industry as a whole a major new impetus as it moves towards the 21st century.

At the same time, the expansion and re-equipment of many craft Programme (EAP), Third World air forces is pro- delayed for some weeks

THE WESTERN world's spend-ing on new military aircraft con-tinues to run at e higb level, and hetween now and the end of this century is expected to emount to more than \$500bn. THE WESTERN world's spend-ing an away Third World countries and hetween now and the end of this century is expected to emount to more than \$500bn. THE WESTERN world's spend-ing any Third World countries and hetween now and the end of this century is expected to emount to more than \$500bn. THE WESTERN world's spend-ing any Third World countries and hetween now and the end of the recognition that erospace enhances any nation's The devine available, these demonstrators will effectively prove in opera-to devine devine advanced aircraft to follow. Project definition of the Euro-

fighter is now well advanced, and is due to be completed in September. The four nations in-volved will then submit the proct for government epproval, In Western Eurpoe, attention and full go-ahead.

is focused on the new gene-ration of combst aircraft now planned for the 1990s and be-yond — the Eurofighter now in the project definition phase by the UK, West German, Italian The Eurofighter design is for a single-seat, twin-engined, delta-winged aircraft with a pany. small canard fore-wing, for the air-to-air combat role but also Eight prototypes will be built to flight test the entire Euro-fighter weapons system and it is capable of fulfilling air defence and air-to-surface (ground attack) roles. and Spanish Industries, and its rival, the French Dassault-Breguet Rafale, in which Holland, Belgium and Norway intended that production air-craft should go into service in

The planned programme com-prises about 800 aircraft for the air forces of the four netions 1995. craft will have a basic mass empty weight of 9.75 tonnes, and e wing area of 50 square The French Rafale "tech-nology demonstrator" has (probably about 260 each for (probany about 200 each for the UK and West Germany, about 160 for Italy and about 100 for Spain), with the indus-trial participation agreed at 33 has already made its maiden flight. The UK's Experimental Airmetres, with each engine de-livering about 20,000 lbs thrust. per cent each for the UK and West Germany, 21 per cent for Third World air forces is pro-ceeding apace, and will account for a continuing substantial share of the estimated military spending over the next decade and a balf. This growth is being accom-panied by an expansion of intecountries have agreed on the

equipment to be used in the air-craft and once formal full goahead has been given, it is exequipment and component sup-pliers in the four countries will

SENER of Spain.

be invited to submit competitiva tenders for that equipment, including the evionics. It seems likely that consortia

In technical terms, the air-

The Air Staffs of the four

of companies will be encour-aged to undertake specific equipment ltems, as has been the case with the existing Tornado.

The "technology demonstra-tors" for hoth aircraft have now flown the Experimental Air-craft Programme (EAP) in the UK having been delayed for some weeks through industrial problems at British Aerospace's Warton factory. The Eurofighter will thus

provide employment for many thousands of workers through-out the West European aero-space industry, for many years to come, for it will remain in production through to the end of the century and beyond. If exports are taken into account. total production could go well beyond 1,000 aircraft—tha Tornado is already close to that

figure. The Enrolighter will come into production in the early 1990s just as Tornado is running down, so that continuity of military aircraft quantity produc-tion seems assured.

Programme (EAP) itself has cost the UK industry and ture) has been formed by Rolls-Royce, Flat Aviazione, Motoren-und Turbinen - Union and Government jointly up to £180m to date, and further Mr Gerrie Willox of British EAP funding will be necessary to cover the test programme that will follow the maiden Aerospace is managing director of Eurofighter, and Mr Colin Green of Rolls-Royce is manag-ing director of the engine comflight over the years ahead. So far as the Tornado itself is concerned, with another 124

recently ordered from Panavia, bringing total Tornado orders bringing total formado orders to 933, production of that air-craft is assured through to at least 1992. Without the addi-tional orders, production was likely to end in about 1989. (The additional aircraft include those ordered by South arbit those ordered by Saudi Arabia and Oman, and 34 aircraft for the Luftwaffe for electronic/ combat reconnaissance (ECR)). The new aircraft will be pro-duced at a rate of 4.5 aircraft per month, instead of the cur-rent nine aircraft a month, to ensure continuity of production into the 1990s. In the meantime

additional orders for the Tornado are being sought widely, with possible procure-ment by Turkey and Jordan now under discussion. In the US, three major military aircraft manufacturers, Boeing, General Dynamics and

Lockheed, have joined forces In a bid to win a \$26bn order In a bid to win a \$26hn order for the US Air Force's pro-posed Advanced Tactical Fighter (ATF). Designed to succeed the existing F-15 fighters built by McDonnell Douglas, it is expected to be one of the higgest defence orders placed by the US De-fence Department.

fence Department. The US Air Force is looking for upwards of 750 aircraft initially at an initial fly-away price of about \$35m per air-

craft. The US Air Force plans to award competitive contracts this October for the demonstration and validation phase, All the companies involved in mili-

eyond 1,000 aircraft—tha bornado is already close to that gure. The Eurofighter will come nto production in the early 990s just as Tornado is running own, so that continuity of mili-ary aircraft activity in tha US are expected to bld with inde-pendent submissions, but the Boeing, General Dynamics and Lockheed team have agreed that whichever of the timee ary aircraft quantity produc-ion seems assured. The cost of the total Euro-



A Lockheed-California Company artist's conception of how the future US Air Force's Advanced Tactical Fighter (ATF) might look

sub-contractors. McDonnell power-plant concepts for such joined forces in a similar group to fight for the ATF. The US Air Force is also studying e new advanced tactical bomber (ATB) pro-gramme, that could cost as much a sircraft. The next logical step following this research programme could be an experi-mental aircraft development the concepts in flight, but this is not immediately in prospect. A new generation uf trans-

to fight for the ATF. The US Air Force is also studying e new advanced tactical bomber (ATB) pro-gramme, that could cost as much as \$50bn eventually. Primarily designed by Northrop, this air-craft is intended to become operational in the early 1990s, but there is still no formal com-mitment to the venture by the USAF.

An Advanced Tactical Air-craft (ATA) for the US Navy is also currently under study,

which would also be a multi-billion dollar programme. The UK and the US are also now involved in a joint study of a wide range of airframe and engine technologies that could lead to an admonder granewing lead to an advanced supersonic short take off and vertical landing (ASTC mid-1990s. (ASTOVL) aircraft by the

A memorandum of understanding between the two countries for this purpose was signed earlier this year, and the broad objective is to define the technologies that such an aircraft might require. It is not yet a formal programme to develop a new jump-jet fighter to replace the existing Harrier, although is another the second by although it could eventually lead to such a joint programme. Much of the work under tha MoU is devoted to exploring new

the end of the century. This FLA study is independ-ent of an industrially-based study called FIMA (Future International Military/Civil Alrlifter) in which Aerospatiale, British Aerospace, Lockhead and Messerschmitt - Bolkow -Blohm bave been involved. A new generation of trans-port aircraft is also now loom-ing large in US military think-ing. McDonnell Douglas has a \$3.4bn USAF contract for full-McDonnel Douglas of the US also has s study for an Advanced International Military Short Take-Off and Landing Airlifter 53.4m USAF contract for full-scale development of the. USAF's new C-17 long-range four-engined airlifter, of which eventually 210 will be built. Assembly of the test aircraft will begin in 1987, and assembly of the first production aircraft in 1000 Extent into continent miles (AIMSA).

(AIMSA). Whether all these ideas can at some stage be brought together in one coherent inter-national Nato programme

will begin in 1987, and assembly of the first production aircraft in 1988. Entry into services will be in 1992, and completion of the order is set for 1999. Where transport aircraft are where transport aircraft are concerned, tha Independent European Programme Group (IEPG) of Nato has been study-ing for some time the possibility

concerned, the Independent European Programme Group the FLA and the FLAA projects (IEPG) of Nato has been study to be brought together, under NATO anspices. If an in-service date of about national collaborative basis a the year 2000 is postulated, full new large transport alreraft (the evelopment would need to be Future Large Airtraft or FLA) that could basically fulfit tha tactical transport role but also be suitable for adaptation to other duties, such as maritime patrol and anti-submarine warbe suitable for adaptation to then and 1990, which in turn other duties, such as maritime indicates an increasing level of patrol and anti-submarine war-fare, althorne early wartuing, and as an aerial tanker. A European market for several hundred such aircraft could emerga between now and



The Grumman E-2C Hawkeye Airborne Early Warning and Control (AWACS) aircraft, for detecting and locating hostile aircraft, in service with the US Navy, has been offered to the UK as an alternative to the Nimrod project. Another Grumman proposal is to fit the Hawkeye's radar and other avionics systems to the Nimrod airframe-the Hawkrod

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Missiles

MISSILE to more complex demands by air-to-air weapon, hut has been armed forces. The pece of racked by problems. The missile is to enter ser-vice with the US Navy and Air change has led to problems for The AMRAAM programme Force in 1988. Each missile is manufacturers and the future has been criticised by the US likely to cost between \$265,000

recognise and attack targets "goldplated weapon, built with autonomously, operating com- too many capabilities at too pletely independently of the high a cost." recognise and attack targets launch aircraft or ground

Advances in electronics, with weapons development to be ASRAAM, which may be smaller, bigher-speed semicon- moved from the Defence plimentary to AMRAAM. ingeniou; computer software, Counci have led to these intelligent Joint missiles, The missiles operate Manag alone after launch, but the bigh would able after istates, out the oight would seek to increase off the cost of their development has shelf purchasing and stop the led to a parallel move by cost- "goldplating" of weapons with conscious defence departments superfluous technology, the towards smaller, simpler and commission recommended. In tests, the missile has hit a make direct blts on targets. The AMRAAM, advanced

manufacturers and the future has been criticised by the US likely to cost between \$265,000 advanced mi of some recent projects has congress as too expensive and and \$275,000 at 1984 prices, development. Artificial intelligence is development. Artificial intelligence is development. Chase of 17,200 missiles for the development. Chase of 17,200 missiles for the the electron about 4m trais conspace companies develop. Packard, the chairman of the rawing boards of several missile manufacturing companies loclude missiles to us detection becomise and attack targets is goldplated weapon, built with and Messerschmidt-Bolkow. Siles for the us and stack targets is goldplated weapon, built with and Messerschmidt-Bolkow. The mark companies to mark compa Blohm in West Germany. The UK and Germany are already working on the edvanced short Tha commission called for range air-to-air missile, ASRAAM, which may be com-

The US Government has con-sidered requests from the part-ners for classified data on the missile. The European com-Systems Acquisition Review Council to e more powerful Joint Requirements and Management Board. This board panies need the deta to enable would seek to increase off the them to build the missiles for e fixed price. as required by the UK and West German Govern-

manoeuvring target after being launched from a manoeuvring

jeopardised by the reluctance in the US to release the complete data on AMRAAM to the Euro-pean Industrial Team (EIT) to The AMRAAM, advanced launched from a manoeuvring jeopardised by the reluctance in the US to release the complete data on AMRAAM is supposed to go the new generation AMRAAM is supposed to go the US to release the complete data on AMRAAM to the Euro-of intelligent missiles and is into full-scale production in pean Industrial Team (EIT) to produce the missile in European of the most important guided and Raytheon. This will be fol-missile projects to emerge in lowed by an open competition

advanced missiles still at the development stage, such as AMRAAM. Phoenix contains the electronic equivalent of about 4m transistors. AMRAAM contains the equivalent of 7m

Other innovations include the possible use of coated optical fibres for the secure transmis-sion of data to and from missiles, to make it impossible for an enemy to jam missile control systems. Guidance data for the missile could be transmitted down high-strength optical fibres instead of down the metal wire used at present on several anti-tank missiles.

anti-tank missiles. In Europe, missile manufac-turers have bad their problems. British Aerospace, for example, has bed difficulties with its airlaunched anti-radiation missile, Alarm. Anti-radiation missiles

developed in a £200m fixed-price Government contract, but it has problems with its new two-stage solid rocketmotor the Nutstage solid rockermotor the Nut-hatch. This has been developed by Royal Ordnance Explosives division, the Government-owned arms and munitions company, wbose sale on the Stock Ex-change was postponed earlier this summer. The original contract for action towards the Government-owned arms and munitions company, change was postponed earlier the summer. The original contract for action towards the Government-owned arms and munitions company, change was postponed earlier the summer. The original contract for action towards arms and munitions company, change was postponed earlier the original contract for action towards the summer. The original contract for action towards and munitions company, change was postponed earlier the original contract for action towards arms and munitions company, change was postponed earlier the original contract for action towards arms and munitions company, change was postponed earlier the original contract for action to a the statistic the original contract for action to a the statistic the original contract for action to a the statistic the original contract for action to a the statistic the original contract for action to a the statistic the original contract for action to a the statistic the original contract for action to a the statistic the original contract for action to a the statistic the st

change was postponed earlier this summer. The original contract for rocket motor development was for kits to upgrade existing let by BAe to the former Government-owned Propellant, air missile systems to the im-Explosives and Rocket Motor proved Darkfire standard. Dark-fire is a version of the Rapier sequantly taken over by Royal ordnance, which is still owned by the Government after the abortive attempts to mivatise ton. abortive attempts to privatise the company with a stock

British Aerospace was unsuccessful in its bid for a lucrative West German contract for antiradiation missiles. In May, Taxas Instruments' Harm high-speed anti-radiation missile. In the US, the Strategic De-

speed anti-radiation missile, west Germany has a require-ment for up to 9,000 missiles. In the US, the Strategic De-stategic bellistic missile, is to fince Initiative Organisation Is at the focus of advanced tech-nology developments. The "Stat incraft missiles able to be launched from the shoulder by one man. The Ministry of a high-velocity missile, to be launcher. The MoD considered pro-

MISSILE development is recent years. It could become for the full-scale production of change in missile posais from British Aerospace design is illustrated by a com- for its Thunderbolt high-to more complex demands by air-to-air weapon, hut has heen armed forces. The pace of racked by problems. The missile is to enter ser-change has led to problems for The AMRAAM programme Force in 1988. Each missile is Phoenix air-to-air missile and against beavily-armoured heis-manuferurers and the future has been criticized by a to the to cost have an \$285 000. copters and low-flying aircraft and from Sbort Brothers of Belfast for the Starstreak highvelocity missila. At the British Army Equip-

ment Exhibition in June, tha Master-General of the Ordnance, Lt-Gen Sir Richard Vincent, said that the Shorts Starstreak missile on an Alvis Stormer vehicle had been chosen to meet the Army's requirement for a high-velocity

anti-aircraft missile. Tha MoD is considering fitting British Aerospace Sea-wolf short-range anti-missile missiles to the Royal Navy's three aircraft carriers and some Type 42 destroyers. Tha company's naval weapons division was awarded e £400,000 contract in the spring to study bow Seawolf could be developed with e

ments. European production under licence of the missile may be jeopardised hy the reluctance in the US to release the complete for development and production awarded by the Ministry of Defence. The missile is launched vartically so it can

is designed to be launched from the ground to intercept ballistic missile re-entry vehicles in the upper atmosphere. The first

flight tests of the HEDI are expected to take place in 1989. In the conventional role, the US Air Force is to request range attack missile (SRAM II) for the Rockwell B-1B and that tion. The advances in missile tech-

The first of 750 Alarm missible technology have not made gun and sites are supposed to he in British Aerospace has a private service with the Royal Air joint venture development with Northrop advanced technology bomber, the "stealth" air-craft. The USAF is studying aland-off weapons under a NATO programme.

company OTO Melara, for en-abling the trajectory of gun shells to be corrected in flight. intercontinental ballistic missiles, the Peacekeeper, formerly called the MX missile and the The 76 mm course-corrected shells have small rockets, consmall Intercontinental ballistic missile (SICBM).

The US Peacekeeper MGM-118

The US is developing two

The Javelin supersonic, close range portable guided weapons system, made by Short Brothers, is designed to meet the widest range of low-level air defence requirements

tember last year.

to develop the Thunderbolt ex-periment in a \$31.5m contract. The US is developing e high endoatmospheric defence inter-ceptor (HEDI) missile, as part of its SDI initiative. The HEDI

Matra, the French manufac-Matra, the French manufac-turer of guided missiles, bas an ambitious programme of de-velopment to meet demand in the 1990s. The company has in-production, or is developing, about a dozen missiles for the next decade, including the MICA air-to-air missile to be.

completed by 1990. MICA is to compete for export sales with the AMRAAM and ASRAAM.

the AMRAAM and ASRAAM. France wants to equip its havy with an advanced anti-missile system in the 1990s, with a range of 15 km. Thomson-CSF is the prime contractor for the surface-sir anti-missile system, SAAM, and is design-ing the radar and fire control system for the missile. Matra and Aerospatiale are competing short-range nuclear missiles. The proposed new missiles could also be used to protect the French land-based nuclear de-terrent, in the 1990s.

In Canada, the national defence department earlier this year chose a team led by Oerlikon-Buhrle and Litton Systems Canada to produce its Canadian \$800m low-level air defence system. The pro-posals were based on the air defence anti-tank system defence anti-tank system (Adats) developed by Martin Marietta for Oerlikon.

Lynton McLain



The British Aerospace Tracked Rapier anti-aircraft missile, now in service with the British Army

The People's Republic of China has developed its own intercontinental ballistic missile, the CSS4, capable of carrying a nuclear warheed. The missile was test-fired in Sep-

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5167m in the 1967 fiscal year In France, Aerospatiale and for research and development Thomson-CSF have started stu-of e eecond-generation short- dies of an anti-tactical ballistic missile (ATBM). This could eventually become a part of a European network to counter

France has suggested, in talks at official level with the UK, that Britain could collaborate on the anti-missile defence sys-tem. These discussions have taken place in parallel with and Aerospatiale are competing to make the missile. Aero-spatiale is offering its Aster missiles and Matra is offering versions of its SAMAT. efforts by the French Defence



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For example, West Germany's decision to support industrial collaboration with us on Harpoon missiles resulted in \$200 million (US) in benefits to the West German economy – 1400 per cent more than the target figure. Since Spain's 1983 selection of our F/A-18 aircraft, we've already helped generate \$119 million (US dollar equivalent) that has been approved under the benefits program, and the amount keeps growing. These agreements have expanded job opportunities and taught valuable new skills to workers in our

country as well as theirs, so everyone wins. World markets have opened for

Because of these ventures, new technologies have been introduced and others expanded, not just in aerospace, but for businesses throughout the countries.

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### Aerospace 8

### Business aviation

## Marked decline in US sales

lopments in the past year. In the UK, the most contro-versial issue has been the civil lines at peak hours by banning Aviation Authority report, CAP general, business and all-cargo 522, on runway and airport flights at Heathrow and at Gat-capacity in the London and wick at those times. The south east area.

In the US, home of the world to make exemptions, business and general aviation The Government of business and general aviation. The Government considered industry and source of the that there should be no addi-majority of aircraft owned or tional rules on restraining airused by companies for business, port use by any categories of sales of new aircraft have stag aircraft until it became nated and in some cases fallen absolutely necessary — that is, by their greatest amount since when existing runway capacity the second world war. was saturated.

the second world war. The Civil Aviation Authority, It wanted the existing system in its final advice to Mr John of allocating take-off and land-Moore, Secretary of state for ing alots by the airports' and Transport on the subject of air airlines' scheduling committees Transport on the subject of air airlines' scheduling counting to meet the pro-traffic distribution in the Lon- to continue, to meet the pro-don area, recommended a total hlems caused by steadily-rising the business eviation move- demand.

BUSINESS AND general avia- Government's decision in poses a serious problem at these tion has feeed two major deve- response to the CAP 522 report, two airports."

The association argued that it bad been possible so far to accommodate the needs of busi-ness aviation at Heathrow and Gatwick, " despite planned fullcapacity by scheduling com-mittees." Government reserved tha right

Business aviation is the sector of general aviation con-cerned with the operation of aircraft by companies for the carriage of passengers or goods as an aid to the conduct of their business. Members of the association include leaders of "the principal creators of wealth and employment," the association told the Secretary

demand. In the meantime, the Depart-

shortage proportionately among the classes of operators. The

association was firmly against any limitations imposed artificially on the basis of class or category of operation.

Business aviation users point out that they need to retain fair access to Heathrow and Gat-wick airports, Connection with world airlines is often neces-sary and some business aircraft have radio aids that can only be used at Heathrow.

The industry has not ruled out the development of suitable relief airports for business traffic in the London area and would encourage these airports to be used by business aircraft, hut it wants relief airports to be considered with much of State. be considered Mr Derek Leggett, chief greater urgency.

These airports would have to be properly equipped and pro-vide the same margin of safety

ban on husiness eviation move-ments at Heathrow and Gatwick airports during the bours that these airports would be at full capacity as indicated in the airline scheduling committees' plans. The British Airports Author-ity, tha Business Aircraft Users' Association and the scheduling committees did not argee with such e ban and said so in their submissions to the Secretary of State for Transport. In the event, Mr Michael Spicer, the Minister for Avia-tion, who announced the

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The Beech Starship I is a revolutionary design concept for business and executive aircraft now under development. First deliveries are scheduled for mid-1987

In the US, the biggest single market for business and general aviation aircraft, sales of new aircraft excluding heli-copters have fallen sharply this year, with few signs of a recovery.

The results represented a decline of one-third in the number of aircraft sold compared with nearly 1,000 sold in the first balf of last year.

The sales value of the air-craft in the first half this year was almost 40 per cent down compared with the corresponding period in 1985, according to the US General Aviation Manufacturers' Association. Single-engine aircraft deli-veries, at 483 aircraft delivered,

were down 25.7 per cent on the first half last year. A total of 43 twin-engined piston aircraft were delivered, a decline of almost 60 per cent on the period last year.

Business jet and turboprop aircraft accounted for 37 and 86 deliveries respectively, down 43.9 per cent and 43.4 per cent

on the period last year. Three makers delivered fewer than five aircraft in the first quarter 1986: Gates Learjet delivered two Lear 35A busidelivered two Gulfstream Aerospace craft are ever to be restored to \$1.9bn in 1984. Domestic US delivered two Gulfstream three anything like their usual levels, sules suffered a decrease of \$7 large business jets and a Com- Few observers believe that this per cent in volume and 23 per mander 1000 turboprop; Fair- return to high sales is likely in cent in dollar value over the child Aircraft delivered four the foreseeable future. period. Metro 3 commuters.

Actro 3 commuters. A typical comment on the Despite the current poor impact of the product liability

In the first half of the year, sales outlook, some manufac-the US general aviation there continue to develop new aviatian alreraft and their industry reported the delivery types. of 649 aircraft worth \$409.1m. The results represented a decline of one-third in the number of aircraft sold com-expected to receive FAA certi-on transport, aviation and

expected to receive FAA certi-fication in September. The company has \$1.5bn backlog of orders for the aircraft. materials. The company makes mag-

Beech of the US has pro-duced its revolutionary Star-ship business turboprop made with a completely composite netos and ignition wiring for general aviation aircraft, but recently scrapped a year's engineering research on a new electronic ignition product. structure. The aircraft has two

"The reason we did so," he said, "was not economic or technical. We were mostly conrear-mounted pusher propellars and highly-swept wings with a foreplane ahead of the main toreplane ahead of the main technical. We were mostly con-wing. cerned with the potential pro-traction of the main technical. We were mostly con-cerned with the potential pro-duct liability risk of such an less fuel than a comparable innovative product. We were business jet, according to afraid of becoming a technolo-Beech, and is designed to carry gical pioneer and potentially eight to 10 passengers over a subjecting ourselves to some distance of 2,250 nautical miles, plaintiff's attorney second of the pastenger of the plaintiff's attorney for the plainti

distance of 2,250 nautical miles, planner's attorney second The US business and general guessing our decision in a law-aviation industry has been faced with a proliferation of This type of concern has con-product liability lawsuits. These tributed to the decline in sales have been given by the main of light, general aviation and manufacturers of general and business aviation aircraft as has helped to depress total the single biggest hurdle to be sales of commuter and business; overcome if sales of light air-aircraft from \$2.100 ni 1984 to Eraft are ever to be restored to all \$1.500 ni 1984 to

Lynton McLain



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The real value of working time for upper and middle management executives far exceeds their hourly salaries. A study by Business and Commercial Aviation Magazine (July 1982) estimates that an executives worth is 10 to 50 times his annual salary resulting in the hourly value of time shown.

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Aerospace 9

#### New Techniques

# **Revolution in technology**

AS THE costs and complexity of modern military and commer-cial sircraft, guided weapons and space hardware continue to se, the serospace indus-U.y. for many years a pioneer of new techniques of manufac-ture and of new materials, is stepping up its own efforts to generate and exploit further technological advances. And it is encouraging its suppliers in many other industries to do the

In military aircraft, the resuirement is for more efficient. lighter, faster, more agile, stronger and cheaper aircraft than in the past, and this requires more complex manu-

facturing techniques. The prime requirement in commercial aircraft, spart from strength and safety, is for reductions in weight to save fuel and bring down operating costs for the sirlines-savings which can be passed on in lower faces and rates to passengers and cargo shippers

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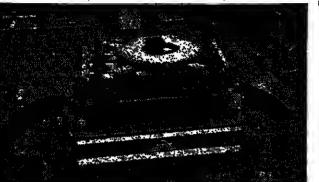
In guided weapons, meticulous precision in performance at very high speeds is essential; while in space hardware, whether satellites or manned spacecraft, durability of performance in an exceptionally alien environment is paramount.

Tha demands that all these requirements place upon materials, systems and structures are exceptionally severe, and throughout the world the aerospace industry is continually seeking improvements in all fields to keep costs within acceptable limits for the ulti-mate customers, whether govern-

uents, air forces or airlines. Other requirements are also becoming more stringent. Manufacturing times must be reduced, not only to help keep costs down but also to ensure that an individual company's or country's products are not overtaken by competitors. At the same time, the chang-

ing environment in which many aircraft and spacecraft are being required to operate-such as at greater altitudes and at greater speeds-is also leading to refinements in acrodynamic

The demand for a " common " wing for the next two European Airbus models, for example, the A330 and A340, one a twin-engined and the other a four-engined aircraft, is already stretching tha serodynamic design talents of British Aero-space, despite the fact that it is already one of the greatest air-liner wing specialists in the



Automatically-guided vehicle carries a turbine disc in one of Rolls-Royce's Derby factories. Rolls-Royce has introduced an extensive integrated manufacturing system (AIMS) to automate and cut the costs of manufacture

Other

cost.

material advances

Kevlar, the carbon fibre com-

of detailed parts, along with increased strength-to-weight ratios, a reduction in waste materials and easier produccould be overcome successfully. Rolls-Royce is now running ceramic turbine blades on e demonstrator engine. tion of large, complex, curved shapes. pioneered by Rolls-Royce in-

Work is also being carried out in BAe on super-plastic forming and diffusion-bonding techniques which appear to be well suited to the use of titanium, enabling this strong, lightweight metal to be formed into complex shapes. Such techniques are used in production of wing components for the A-S20 Airbus, offering dramtic weight-saving benefits, and will also be used on new generations of advanced military aircraft. Super-plasticity is a pheno-menon which occurs in a number of metals which have

a suitable micro-structure (certain alloys of aluminium, titanium and steel) whereby at temperatures of about 50 per cent of melting point, the metal assumes a so-called "super-plastic condition."

In this state, and under load, tha metal will deform at near constant stress to give the complex shapes required in aircraft manufacture.

In addition to weight savings and a higher level of damage tolerance, such parts can be reduced in number, while also allowing for reduced assembly and fabrication time, thus resulting in lower manufacturing costs.

Diffusion-bonding, in simple terms, is where a number of suitable pieces of metal are pressed together at a critical temperature, the cl grain structure causing atomic diffusion across the joint line. The resulting structure be-comes a single piece of metal The resulting structure -the joint line disappears. At present, for aircraft design purposes, this process is applied to titanian alloys, with result-ing structures that are com-petitive in terms of both cost and weight, with carbon fibre composites and conventional aluminium alloy designs. At Rolls-Royce, considerable attention is paid to what the company calls "the manage-ment of technology." This mvolves keeping under review all the economic and competitive factors which affect the future of its business. Advonced technology and demonstrator programmes are undertaken so that Rolls-Royce can keep its options open and make thet most of business opportunities offered by new engines and developments of current ones when these arise. Research and technology demonstrator programmes prove the effectiveness and practicability of technical dvances at relatively low cost before they are applied to an engine which will go into development, production and service.

savings over the steel retention rings used on earlier high-by-pass turbo-fan engines.

Rolls-Royce has pioneered in many other advances in aero-engine development, including the application of computers to design and manufacture, design and manufacture, together with the construction of major new advanced test facilities such as new noise facility at Hucknall, an ad-vanced compressor test facility at Derby and a turbine test facility at Bristol

The company has built a new gearbox test rig for work on the forthcoming generation of prop-fan engines.

The introduction of advanced machining centres and robot handling has made it possible to produce engine parts faster, more efficiently and more economically end to reduce the large inventories of work in progress that were typical of engine manufacture in the past,

There are many other new techniques of manufacture, and new materials, now moving into aerospace. The advanced tech-nological revolution has effec-

clude tha use of composites based on carbon fibres, now tively only just begun, and over the next few years it can be expected to accelerate, as applied to major non-rotating parts of engines such as cowing expected to ac panels and by-pass ducts in the requirements of civil and order to reduce weight and military aviation themselves more stringent and hecome

improvement during the 1982-1984 period following the air-line recession of the early 1980s, culminating in a 9 per cent growth in the tonnage carried in 1984, last year there was a small decline, to 13.2m freight tonnes carried. This fell is satisfund to the

This fall is attributed to the slowing down in the rate of

Fall in tonnage carried activity showed e significant some of the Western world's handled by its seven airports improvement during the 1982-1984 period following the air-line recession of the early which has apparently also con-wick) remained wirtually static tinned into the early months of at 740,550 metric tonnes.

Wings built by Short Brothers of Belfast for the Dutch Fokker 100 jet airliner

are loaded into a giant freighter of Heavy Lift Cargo Airlines for shipment

to Amsterdam

Air cargo

Atlantic ronte. This situation is widely regarded in the air transport industry as temporary. At the

Figures issued by the British Airports Authority (now BAA plc) for the first six months of current level of more than 13m freight-tonnes, air cargo is still 1986, for example, indicate

the increasing interest being shown in freight as a potential contributor to revenues a profits among most of the mat ues and virlines in the Western world.

IX

In many airlines, vigorous efforts are being maintained to overcome current problems and ensure a resumption of growth in the years ahead. There is flerce competition not only herce competition not only between airlines and freight forwarders but also between individual airports, to win the business that is available and promote further expansion.

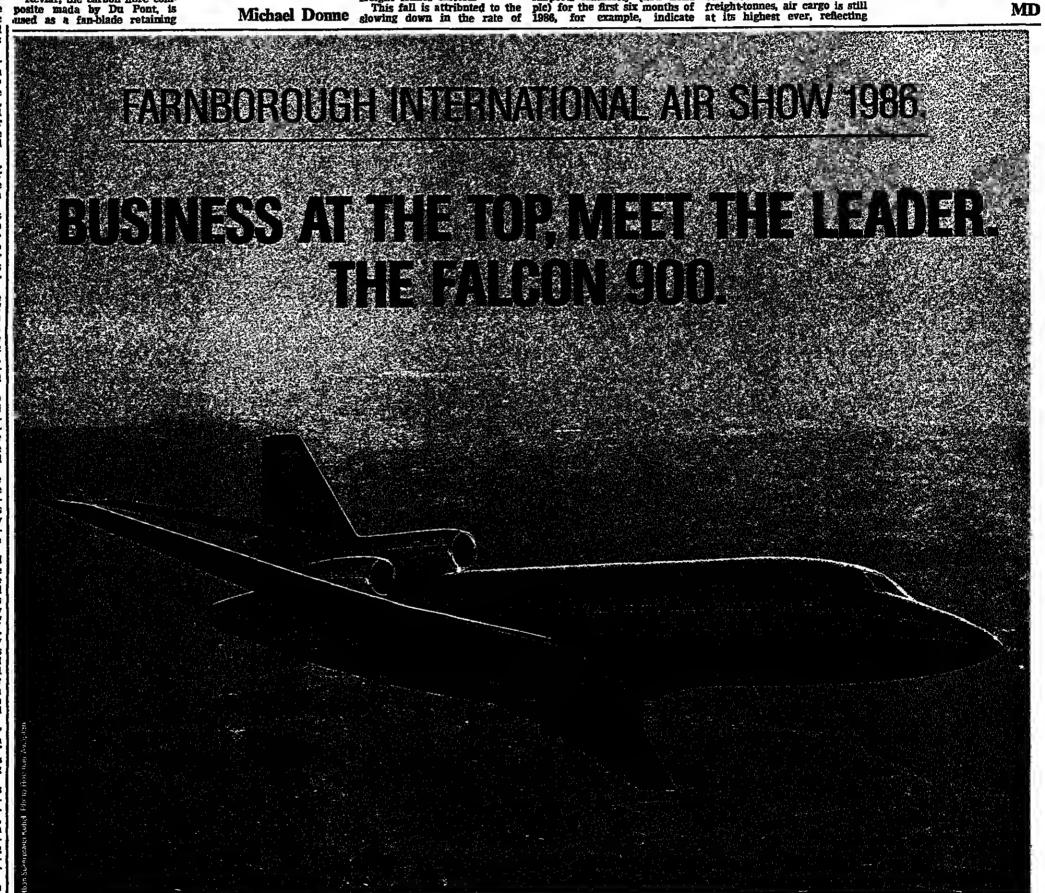
In the UK, these efforts are being spearbeaded by BAA pic through its Loodon Air Cargo Promotion Group (called the Task Force) which brings to-gether all elements of the air cargo industry to promote the concept of the UK, and the London area in particular, as a major air cargo centre.

The Task Force's "Gateway message has been London carried to many parts of the world, and last May the sales promotion drive was taken to the Far East, via Tokyo and

The efforts of the Task Force in 1985-86 resulted in London overhauling Paris to take second place (after Frankfurt) in the European air cargo league—the first significant change since 1981-82.

BAA plc points out that the opportunities for London to recapture lost traffic and to gain new business remain "very good," but it adds that industrywide consultation and co-opera-tion "must be supported and tion "must be supported and atrengthened if London is to regain its position as the premier Europea to the world." pean cargo gateway

MD



In other areas also, major advances are being sought and achieved. The need for greater agility in combat aircraft has already led to the development already led to the development of new systems of in-flight con-trol, such as "fly-by-wire," where electronic signals control the manoeuvrability of the air-craft, and this is leading on to the use of fibre-optics, or "fly-by-light."

British Aerospace has done much work in these fields, especially with the "fly-by-wire" Jaguar demonstrator, with the result that the current Experimental ... Aircraft Programme (EAP) uses this system and it will be incorporated into the forthcoming Eurofighter it-

self. The use of computer-sided design and manufacturing (CAD/CAM), largely pionecred in the aerospace industry but now widely used throughout general manufacturing indus-try, is still one of the basic tools of aircraft design, development and manufacture. But in many companies on both sides of the Atlantic it has been, and is being, carried to new heights of refinement.

being, carried to new neights of refinement. For example, at British Aero-space, it is being applied to the design and manufacture of jigs and fixtures required in the manufacture of detailed airframe components. At the same time, more extensive use of robotics is being made. British Aerospace's military aircraft division at Warton, Lancashire, has also pioneered the development of what is called the "fierible manufac-turing system," involving the complete automation of small parts manufacture from the receipt of the raw materials through to the finalised component ready for assembly on an aircraft, with the mini-mum amount of operator interum amount of operator inter-

Using numerically-controlled machines under computer con-

vention, Using numerically-controlled machines under computer con-trol, this system is generating savings of up to 80 per cent in manufacturing time, while reducing unit costs by 70 per cent, work in progress by 90 per cent, and the cost of stock by 85 per cent. BAC's Warton factory is now one of the largest mimerically-controlled manufacturing plants in Europe. At British Aerospace, etten-sive use of new materials has also been progressively ex-ploited to reduce manufactur-ing this and costs, especially in advanced military alteraft where more complex shapes are required than on alteraft of the past. These activities have been particularly applied to the S180m Experimental Aircraft Programme (EAP), which is a "technology demon-strator" for the fortheoming Eurofighter, and will also be applied to itse latter aircraft. Extensive use is made of carbon fibre composites, which offer a reduction of 30 per cents

offer a reduction of 30 per cent in manufacturing costs because material on the latest engines, giving considerable weight of the reduction in the number

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This ensures that technology for new engines is proven in advance. This "up-front" advance. This "up-mont expenditure on technology has reduced overall engineering costs by up to 60 per cent. Specific recent developments in new technology by Rolls-Royce include advances in en-

gine turbine blade manufacture, whereby the crystal line grain whereby the crystal line gram structure of blades is con-trolled while they are being cast. This has led to direction-ally solidified (DS) and single-crystal (SC) turbine blades. DS blades are cooled in such a way that the molten metal solidifies as crystals stretching the length of the blade-giving greater strength in this direc-

solidines as crystals stretching the length of the blade-giving greater strength in this direc-tion to carry its high centrifugal loads. These blades are more reliable and have a longer ser-vice life than those with a crystal structure providing the same strength in all directions. SC blades are cast in a man-ner similar to the DS process, but arranging for the whole blade to solidify as a single crystal of high-strength metal, Rolla-Royce has designed advanced computer-controlled facilities for the manufacture of DS and SC blades which are unique to the company. It is also a leader in non-destructive testing and techniques for checking whether the crystal axes within SC blades are cor-rectly aligned to provide the required strength characteris-tics. Other advances being studied

tics. Other advances being studied orner advances being studied include new techniques for the manufacture of engine com-ponents including those based on powder metallurgy. Ceramics, too, have long offered the promise of being an

effective high-temperature material for turbines if adverse factors such as their brittleness

September 1986, the world of business aviation meets its leader, the Falcon 900, at the Farnborough air show.

Recognized as the leader by aviation experts who flew it, the Falcon 900 is not a project any more: it flies ... and production follows on.

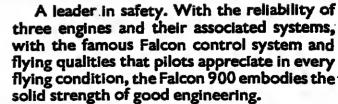
A leader in comfort, the Falcon 900 sets new standards in the balance of cabin proportions, volume, light and silence. The degree of engineering knowhow applied to the most trivial elements of comfort is astonishing.

A leader in performance, the Falcon 900 is

not only allowing ample intercontinental range, it also has the lowest approach speed and the highest speed limit. It may cruise at 0,85 times

the speed of sound but proved it can fly at ·94 Mach.

A leader in optimization, the word to express an unceasing quest for efficiency, the Falcon 900 is optimized not maximized. Thus. taking off for its maximum trip, the Falcon 900 will weigh 21.000 kilogrammes, 10 tons less than its competitor, yes... one third less weight. Efficiency is also in the modern systems in ever more reliable and thrifty Garrett engines. It is also in a degree of maintainability never reached before.

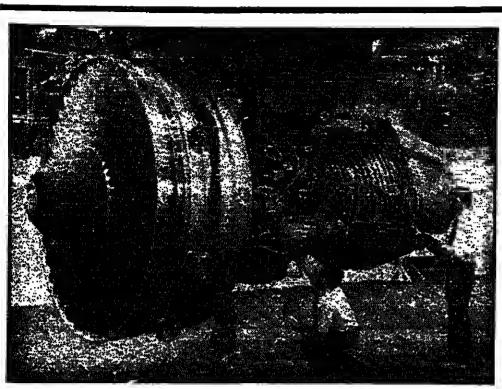


Aerodynamics, flying features, quality of engineering issued from wide and far reaching experience, design for availability, every feature gualifies the new leader in the world of business aviation. The Farnborough air show this year offers you a chance of meeting the Falcon 900. A business meeting to be given high priority in your schedule...

# Dassault International chalet 1 - 4 row C / stand NE 5-2

Business takes off with Falcon.

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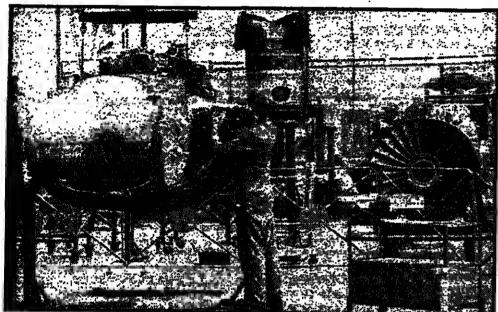
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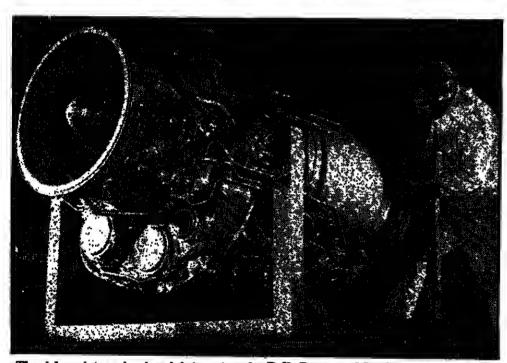
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Pratt & Whitney's latest "high-thrust" turbo-fan jet engine is the PW-4000, for Boeing 747 Jumbo jets, tri-jets and wide-bodied Airbus aircraft



The Rolls-Royce Pegasus 406 is the latest production version of the vectored-thrust jet engine used in the advanced British Aerospace-McDonnell Douglas AV-8B Harrier II fighter for the US Marine Corps



# Waiting for the prop-fan era

Engines

ALTHOUGH THE world's major aero-engine manufacturers continue to spend considerable sums the OIL development of turbo-propeller engines of all kinds, in the certainty that these types of power-plant will remain in alrine service well into the next century, an increasing volume of investment is now being devoted to a new development-the propfan engine, Various claims have been

made for this type of propul-sion — that it can offer reductions of up to 40 per cent in fuel consumption compared with current generation turbo-fan engines, or 25 per cent better than the new generation turbo-fans now under develop-ment, together with less noise and pollution, while also and pollution, while also yielding aircraft speeds equivalent to those provided by jet engines themselves. Such claims have to be proved, however, but if they can be justified, the prop-fan engine will clearly be e

engine will clearly be e formidable competitor to conventional turbo-fan and turbo-propeller propulsion. Already extensive prop-fan research is being undertaken by all the major engine manufacturers, and interest in the concept is

Fundamentally, the prop-fan is a derivative of the already well understood concept of hamessing e propeller to a gas-turbine engine to provide turbo-propeller power. The differences lie in the design number of propeller blades - usually up to 16, mounted in two sets of eight on two counter-rotating hubs, and designed rather like scimitars or ships' screws instead of the conventional propellers of today.

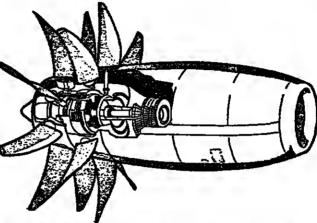
Also, the design of the gas turbine engines themselves as been improved to give substantially greater efficiency. The combination of these developments generates the fuel savings and other benefits claimed for the prop-fan.

Work on prop-fans has been under way for several years, especially in the US where a joint Government-sponsored programme starting late this National Aeronautics and Space Administration and the aero-engine manufacturers has resulted in plans for flight-test programme starting late this summer and next year on various prop-fan engines, using blades built by Hamil-ton Standard of United Tech-

road with its GE-36 engine, which is to be tested on a e tested on a ventures involve extensive flying test-bed international collaboration. starting late this summer. This Boeing has gained a 25 per cent will be designed to provide financial and engineering sufficient confirmation of development stake in the 737 earlier predictions to enable from the Japanese aerospace

GE to put the engine into pro-





A prop-fan enjuite. The gas-turbine "core" (right) generates the power to turn the counter-rotating hubs (left) on which are mounted several propeller blades, shaped rather like ships' screws. These blades can be "open," as shown, or "ducted," surrounded by a nacelle

prop-fan engine, the 578DX, mine the most popular interior, which will be flight-tested in a layouts for their prospective McDonnell Douglas airliner airliners, next year. If successful, thet flight test will be followed hy further tests of the GE engine in the MD-80 aircraft. The object of bett tests of the satis-

The object of both tests will be te help McDonnell Douglas to refine its own ideas on a proprian airliner design, the MD-91X, which it plans to offer the airlines next year for service in 1991. A higger, 160-180 seat air-liner, the MD-94X, could be

built for delivery in 1994, to rival the Boeing 7J7. Mr James summer and next year on various prop-fan engines, using blades built by Hamil-ton Standard of United Tech nologies. General Electric is probably further down the development road with its GE-36 engine. Batter at the Boeing 737. Mr James Worsham, president of Douglas Aircraft Division of McDonnell Douglas, has said: "We can make it happen. but it will happen. We intend to make it happen-before anyone else." Both the Boeing and Douglas

But GE itself appears to have no doubts. It eavs that its engine, which it calls an "Unducted Fan" or UDF (others call their prop-fans "Ultra High-Bypass" or UHB engines and there are already many variants on the trade names involved), is already a reality. reality

| Engine<br>Thrust | Pratt and<br>Whitney | General<br>Electric | Rolls<br>Royce |
|------------------|----------------------|---------------------|----------------|
| 50,000+ibe       | JT9<br>PW4000        | CF6-50/80A          | 594            |
| 35-40,000 be     | PW2037               |                     | - 53554        |
| 18-25,000 lbs    | JT8D<br>V2500        | CFM59               | V2500          |
| 10-15,000 lbs    | CISTL                |                     | TAN            |

smaller 150-seater airliners, but also "ducted rotors," which are larger engines with shrouds or nacelles round the propellers. This makes them suitable for over 50 per cent of po demand to the year 2000. ment of test rigs for the co rotating fan and turbine research into macelle technology under-wing installation on higger aircraft such as the Boeing 747 Jumbo jet. Rolls-Royce is committing considerable technical resources lation in conjunction with sir-

to this work, which is aimed at the possible start of full-scale production in the 1990s. The research has included the conestruction of a new test facility for gearboxes transmitting up to 15,000 hp—such gearboxes being likely in its view for

future prop-fan engines. While recognising that there will be substantial interest in the prop-fan engine in the smaller aircraft, such as the 150-seater 737 and 100-seater MD-91X in the early 1990s, Rolls-Royce believes that the biggest market in, terms of value will emerge in the larger aircraft of over 200 seats for medium to long ranges, such as new-generation trijets or Jumbo

new-generation tri-jets or Jumbo jets, in the mid to late 1990s. Much of Rolk-Royce's prop-fan work is thus currently being directed towards engines for the bigger aircraft, with studies on what the company calls a "contra-fan" engine" which might be suitable for new ver-sions of the Boeing 747, such as the Serles 500 for very long ranges in the mid to late 1990s. Aircady its studies have indifactorily actied before the sir-craft can be accepted for service, in addition to confirm-ing the fuel consumption claims. Also, there are differing views on the merits of different designs—gearbones (as in the Allison/Pratt engine) against Already its studies have indi-cated that it would be possible to develop an engine of reduced length and weight compared with original design ideas. gearless engines (as in the GE prop-fan). But GE itself appears to have

Interest in the prop-fan is now growing rapidly and the concept is in fact now developing a momentum of its own In West Germany, Messerschmitt - Boelkow - Blohm has signed an agreement with Catic, the import-export agency of the Chinese Ministry of

Aviation, to co-operate on

Also in Western Germany, Dornier, which builds the small DO-228 turbo-prop commuter sirliner, has begun studies that could lead to development of

frame manufacturers. All of this could lead to a "demon-strator engine" programme at the end of this decade. At the same time, Motoren-und Turbinen-Union (MTU) of West Germany has begun work on a "shrouded" (with a (with a nacelle round the propellar hlades) proprian engine, that could become a rival to the 25,000 lbs thrust V-2500 conventional turbo-fan engine now under development by Inter-national Acro-Engines for the forthcoming Airbus A-320 twin

engined jet airliner. Called the Counter-Rotating Integrated Shrouded Prop-fan (Crisp) the initial development programme, leading up to wind-tunnel testing in late 1987, will last a year, after which develop-ment would prohably be under-taken on a collaborative partmerality basis with other engine companies, possibly including some which, like MTU itself, are already partners in the IAE

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and research into engine instal

V-2500 programme. One possible outlet for such an engine could be in the Air-bus A-320 itself by about the mid-1990s, thereby preventing that sirliner from becoming obsolete when the rival Boeing 7J7 . 150-seater become operational in 1992. The pro-jected MTU engine could also be used in the projected A-330 high density medium-range and A-340. long-range airliner projects.

The Adour jet engine is a joint venture by Rolls-Royce and Turbomeca of France, for the Jaguar jet fighter and the Hawk fighter and trainer aircraft

ambitious plans in the US and Western Europe for a manned space station in the 1990s. Meanwhile, the focus of inter-nstional ettention in space ecti-tivities has shifted eastwards. The Soviet Unien has already Isunched about 40 eatellites this year; has sent into the heavens e new, improved space station; and in what amounts to a series of space-age taxl rides, has fer-ried cosmonauts between this and an earlier station already in the fight ef the 1990 hard the pre-vious 18 vehicles, problems heve occurred en five occasions which have led to the loss of at least now take place until the spring of next year. and an earlier station already in orbit. In July, two Soviet space men, important but for the decision

The spotlight has turned, too, on the space activities of China and Japan. China is offering launch services to the West with its Long March 3 rocket - cades. these vehicles or previous gene-rations heve lifted into space about 20 satellites, all of them Chinese — while Japan is quietly developing the foundations for an impressive space programme of its own, includ-ing even a Japanese version of

before 1988.

orbit. In July, two Soviet space men, Vladimir Soloyov and Leonid Kizim, completed a four-month stint shuttling between the two to concentrate on the Shuttle for launchers, leading to the stopping of production of the belta and Atlas-Centaur expend-able rockets which have success-fully delivered objects into apace for more than two de-

Over the next two years, governments and companies had

planned the launch of about 30 commercial communications satellites in either Ariane or the Space Shuttle, Following the rocket failures. these organisations have received major setbacks. Most

programme of its own, includ-ing even a Japanese version of the space ehuttle. Overshadowing the West's apace industry is Januery's dis-astrous explosion of Challenger Killing aeven astronauts. Challenger wae one of the US Space Shuttles. Pending design changes to the faulty rocket boosters, which were the cause of the explosion. the remaining three Shuttles will not fy again before 1938.

to think twice could putting in and and span are due to be the a submission when they realise ether partners in the venture, that launching the satellite will which is meant to provide be extremely unlikely in this orbiting workshops for experi-period because of the queue ments in areas such as building up for Ariane and the space Shuttle, Besides holding up satellite into the soler system, and for satellite renards.

that launching the satellite will be extremely unlikely in this period because of the queue building up for Ariane and the space Shuttle. Besides holding up satellite schemes for TV broadcasting and telecommunications, the launch hiatus may alse affect setellites currently in orbit for jebs such as monitering the Materials science together will schemes for TV broadcasting and telecommunications, the stellite repairs. I aunch hiatus may alse affect setellites currently in orbit for jebs such as monitering the Materials science together will schemes for TV broadcasting and telecommunications, the stellite repairs. The shuttle explosion has stellites currently in orbit for jebs such as monitering the Materials science together will settlites repairs. The shuttle explosion has in this area is elready worrying many in the US. The plan (the other countries had been due to contribute a further \$4bn or so) may now be the Chinese, Japanese and Soviet rockets to which the West could turn for launches The shuttle explosion has in this area is elready worrying many in the US. The shuttle explosion has in this area is elready worrying maned Salvut stations, one of the plan (the other countries that been due to contribute a further \$4bn or so) may now be the chinese, Japanese and Soviet rockets to which the west could turn for launches

Soviet rockets to which the of which would be ebout \$2.5bn. West could turn for launches are unlikely te provide a colu-tion. These are unlikely te take lenger accident and the US into orbit more than a handfal Congress is unlikely to be as of Western satellites over the next decade — the Chinese and Japanese rockets are relatively unproven while cending sophis-ticated astellites to the Soviet Union for lift-off poses security --which could mean the produc-

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has been done by the Allison Both Boeing and Douglas are Division of General Motors, in looking for additional partners, conjunction with Pratt & Both are also consulting many

which is in orbit, and was joined in February by the first of a new generation called Mir. Inside these capsules, people have lived and worked for up te eight months et a time, con-ducting a variety of scientific experiments and learning the rudiments of space habitation. It appears likely that the Seviet Union has its eyes on a manned trip to Mars, perhaps some time soon after 2000. Such a vecture would be a hnge political boost-and would can-

"When GE announced its development of a 75-passenger a small prop-fan alread to development of intention of building a counter. rotating UDF engine with port, the MPC-75. A feasibility world-beating fuel efficiency, the study is to be completed by industry had doubts," says the mid-1987, and the partners will company. It has been done. The then decide whether the marker ground testing in August, 1985. It set and holds the world'e It set and holds the world'e in the proof of the 70.00 which investments of many GE to put the engine into pro-duction around the end of this year, and Boeing to press ahead with its plans to launch a 150-scater prop-fan powered bailf of 1987, for entry into service in 1992. At the same time, mnch work has been done by the Allison Bothers of the UK and Saab of Sweden. At the same time, mnch work has been done by the Allison Both Roeing and Douglas are

proof-of-concept engine began would support full-scale develop-ground testing in August, 1985. It set and holds the world's record Specific Fuel Consump-tion for turbo-fan engines, of at least 900 aircraft of the 70-90 0.24 lbs of fuel per hour per pound of thrust. The UDF with np to 250 in China itself. proof-of-concept engine has already achieved 25,000 lbs of agreement with General Electric of the US. which is already of the US. which is already

already achieved 25,000 lbs of agreement with General Electric thrust. of the US, which is already "Vibration forces are an order working on the prop-fan for the of magnitude lower than in a bigger Boeing 7J7 150-seater, conventional turbo-fan. And for development of a smaller scale-model testing has already engine for the MPC-75. demonstrated blade configura-tions the model Arleting for the MPC-75.

These investments are so great that current generations of turbo-fan and turbo-prop engines, and the new ones such as the V-2500 now under development, seem likely to continue in service through the rest of this continue and service through the



Latest version of the highly-successful Rolls-Royce RB-211 engine is the 524D4D of about 58,000 ibs take-off thrust, already ordered by Cathay Pacific Airways, and now also ordered by British Airways for the Boeing 747 Series 400 Jambo jet



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 Boeing 767-200/300
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 Boeing 747-200/300/400
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 McDonnell Doughes MD-11
 Airbus A330



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### Aerospace 12

### The UK

# Testing time for decisions

for turnover, exports and a

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is awaiting some major government decisions on new ventures -- such as the Eurofighter; funding for new versions of the European Airbus; and future space development plans—as well as decisions on the privatisation of Rolls-Royce and Short Brothers.

All of these will have farreaching implications for the industry's future workload, export performance and profit-ability through to the end of

the century. Annoal turnover of the UK industry in 1985 amounted to £4 2bn.

Today, the industry exports nearly 60 per cent of its turn-over, or about 8 per cent of the UK's total manufactured exports, and in 1985, the indus-try made a maining contribution try made a positive cootribution to the balance of payments of

over fibn. Overall, the UK aerospace industry employs over 200.000 personnel directly, including some 35,000 in the electronics industry, with another 250,000 employed indirectly on aerospace work in other industries such as metallurgy, chemicals, ceramics, glass, and hydraulics. Few industries. in fact, do not have some relationship, however remote, with aerospace.

Over the past decade, accord-ing to figures prepared by the Society of British Aerospace Companies, the zerospace industry has exported over £22.5hnworth of its products, which in terms of 1985 pounds is worth

The 1984 profit of £26m before tax had been more than tripled in 1985 to £81m. "Now I know that sounds a lot of money, but it really is not enough for us to he making in what was quite a good trading year. To secure our future we need to achieve some-thing like double that figure," Sir Francis said. But he claimed Rolls.Rovce worth of 1985 pounds is worth farms of 1985 pounds is worth f41bn. Over the same period, the industry's contribution to the positive trade balance is f5.3hn, or in 1985 currency in excess of f8.5bn. With the Western world's aerospace export markets through to the year 2000 esti-mated to be worth over \$1,400bn (over £920bn), the UK industry is looking forward to capturing a substantial slice of that trade across the entire spectrum of civil and military aircraft, guided weapons and space hardware.

THE UK aerospace industry is range of products already in heading for another record year production or under development, an equelly significant part positive contribution to the UK's of the industry a future depends it possible for the company " to Airbus A-320. balance of overseas trade. upon new products and pro- return to the private sector with In military At the same time, however, it grammes now in the prepara- confidence and to use the oppor- the prospect of

tory stage. At the same time, much solidate our progress. depends upon the freedom of The company's sales The company's sales in 1986 the industry to conduct its com- are expected to rise to £1.8m, mercial affairs in the way that some £200m higher than in it sees fit, which is why the 1985, with a further rise foreit sees fit, which is why the 1900, which is why the 1900, which is why the 1900, which is aventually also of Short No decision on a date for the Brothers are regarded by many privatisation of Short Brothers in the industry as imperative of Belfast has yet been taken, although the Government has inter positively that it is on its

for the future. British Aerospace, after its stated positively that it is on its for the future. British Aerospace, after its stated positively that it is on its full grivatisation, some time list for eventual return to the ago, has forged ahead, and it private sector. is boped that similarly both The company has been under Rolls-Royce and Short Brothers will be able to do the same. Government ownership since it was taken over in 1943 during

be privatised by next June. "By then we shall have established a reliable track

record of profitability and we will, I am confident, be in an

internationally competitive posi-tion, capable of convincing investors that Rolls-Royce is the company they should invest

The 1984 profit of £26m

mansury in 1985 amounted to will be able to do the same. Was taken over in 1943 during well over f7bn, compared with Recently, in a message to the Second World War. Since close to £2bn in 1975. Over the staff, Sir Francis Tombs, chair- then it has had a chequered same decade, the industry's man of Rolls-Royce, said that financial history, hut has ex-exports rose from £750m to he expected Rolls-Royce would panded considerably indus-

Last year the industry made a

positive contribution of £1bn

to the balance of payments

trially

for the RAF.

Today, it has a flourishing business in three broad areas. Ona is the manufacture of civil and military aircraft, including

the civil 330 and 360 twin turbo

prop commercial transports, and now also the Brazilian-designed Tucano hasic trainer

In guided weapons, the com-

pany makes the Searst ship-to-air weapon, the Blowpipe and

skilled and responsible work- ing ALF-502Rs for Bae 146s, force, and this, together with and for the International Aero-the other strengths, would make Engines IAE V-2500 for the

In military aviation, there is the prospect of some slow-down in the tempo of existing activity, as a result of cuts in the overall defence budget tunities of that move to conin (1.5 per cent annually over the next three years) that may force the Government to spread out some programmes over longer periods of time than originally planned and reduce others.

Already, the Secretary for Defence. Mr George Younger, bas indicated that some Harrier GR Mark 5 jump-jet fighters may be cut from orders already announced, and that its intro-duction into RAF service may be delayed.

Overall, the message coming from the Commons defence debate earlier this summer was that major new ventures will he strictly reviewed as to both

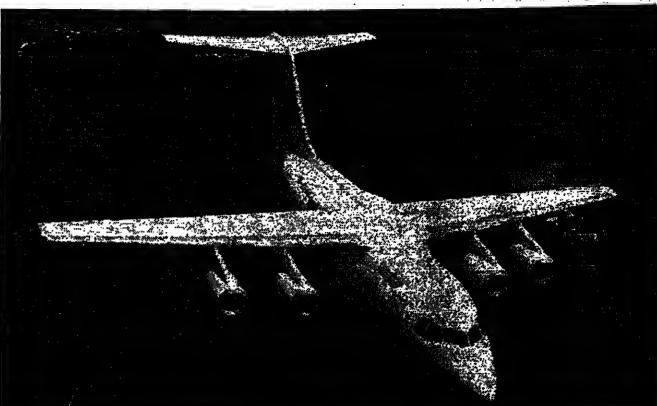
timing and funding. This situation may affect

some current programmes, in addition to the GR Mark 5 Harriers, but there is no indi-cation yet that it will affect the projected four-nation Eurofighter, now moving towards a critical go-ahead decision. The Eurofighter is essential, not only to the RAF as a re-placement for Jaguar strike

aircraft and ageing Phantom and Lightning jets, hut also to the UK military aircraft manufacturing sector which is now over the peak of production of Tornado multi-role

additional orders recently from West Germany for an air reconnaissance version and from Saudi Arahia and Oman, but tripled in 1985 to 251m. I know that sounds a lot of money, but it really is not craft missiles and now also the end in the early 1990s, unless (r even 50 manufacture -end in the early 1990s, unless (r even further orders are won m overseas (and strong efforts the continue, especially for example overseas (and strong efforts the continue, especially for example in Indonesia and Turkey). Sir Francis said. But he claimed Rolls-Royce was now in "guite a strong reductions that had already taken place, the wider range of the solid technology taken place, the solid technology taken place the taken place the taken place the taken place the solid technology taken place taken place the taken place taken place taken place taken place taken

that trade across the entire spectrum of civil and military aircraft, guided weapons and space hardware. While much of that future success depends on the wide



The British Aerospace private-venture four-engined Type 146 regional jet airliner, which is selling well, especially in the US

Spain) will then submit the pro- now being planned — the ject for approval by their medium-ranga, high-density, governments, with a view to twin-engined A-330 and the subsequent launching of full four-engined, long-range A-340. development as soon as pos-sible. As discussed elsewhere in this

survey, the programme envis-ages over 800 aircraft for the four countries, with eight pro-totypes built to flight test the

perhaps as much as £20bn, spread over the four nations, and the workload will keep the military side of the UK aero-space and associated industries

(such as electronics) busy for many years, probably well into experts. heavily committed to other civil aircraft programmes so that much, if not all, of its contribution to the A-S30/A-S40

British Aerospace, however, Is also anxious to participate in the next generation of Airbuses

informal discussions have been ready to pick up the lucrative held with the Department of wing business if BAe itself is Trade and Industry, the view not able to undertake it. Were in Whitehall is that BAe cannot that to happen, a major workexpect to receive the full sum required, and even then will have to make a first-class case

whatever balance is needed This money must come from the partner companies, and so BAe itself expects to have to and thus while continuing with Its existing Airbus work, will be subscribe perhaps as much as £500m for its share of the work our of the further expansion of that organisation.

-principally the wings for the two aircraft, the area in which It is a prospect that BAe does not like to contemplate, and it can be expected to campaign hard for the maximum possible government support for a place-in the new Airbus aircraft. What does not seem to be in it is now one of the world's BAe's problem is that its own cash resources are already

doubt is that even if BAs cannot gain a share in the A-330/ programme will have to be A-340, those aircraft will be developed, one way or another, with other manufacturers al-

**Michael Donne** 

not able to undertake it. Were that to happen, a major, work-load for the UK industry could be lost through the 1990s and

In space, Mr Roy Gloson.

director general of the British National Space Centre, bas now

presented to the Department of

Trade end Industry his National Space Plan. This involves a

beyond.

entire aircraft as a weapons system, and to enable produc-Airbus plans to build the two aircraft with many common parts, including wings and fuse-lages, to keep down develop-ment costs but, even so, the overall cost has been set at not less than \$2.5bs and it may be considerably more. tion aircraft to enter service with tha air forces involved in combat aircraft. Production of the latter has 1995. been extended as a result of The cost will be substantial, considerably more.

> the next century. In commercial aviation, that UK industy remains active in the manufacture of wings for the existing range of European Airbuses and manufacture of complete aircraft such as the

complete alterart such as the BAe 146 regional jet airliner, the Advanced Turbo-prop, the Jetstream 31 turbo-prop, the 125 series of executive jets and the Sborts 330 and 360 twin turbo-prop airliners.

ment, is now planning to for such support at it gets, in develop these for service in the view of the Government's own early 1990s, with a formal desire to keep down public launch expected around the spending and a more critical turn of this year, depending on approach towards launching ald tha inflow of launch orders. for various aerospace ventures Airburg planet to the intervent launching and the spending and for various aerospace ventures in view of past losses in that

series of options, or "menus" from which the UK Government It seems likely that BAe will can choose, with the bighest cost being given to the develop-ment of the Hotel trans-atmospheric vehicle discussed elsewhere in this survey. have to seek soma alternative sources of finance to top up tin enabla it to participata in tha A-330/A-340 venture. The pros-pect otherwise is that BAe will A wide range of options is involved, however, including whether or not the UK supports have no part in that venture,

financially the development of the French-inspired Hermes manned spacecraft, how much the UK spends on development me or spenas on development of its share of the Columbus (Europe's share of the US manned space station), and in the Ariane beavy rocket launcher.

The Government is likely to study the plan carefully, and it could result in doubling the UK's space budget from £100m a year at present, in the 1990s.

subscribed by the Government as launching aid. ready standing on the sidelinesalthough

Adress and Adustrie, in which BAe is a 20 per cent share-holder on behalf of the Govern-

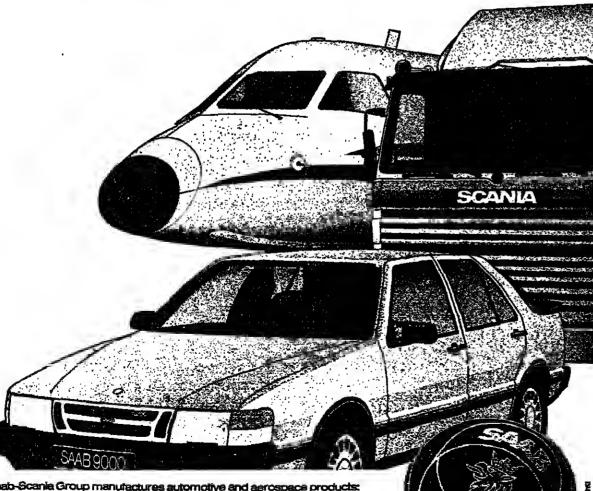
At this

stage,

## We make cars, trucks, aircraft and money.

And every year we make more of them. So much so, that for the last five years Saab-Scania Group sales have increased by an average of 18% and profits have risen by an average of 24% per year. This is the result of a determined policy of concentration and specialization in products for well defined market sectors. Areas such as high performance passenger cars, trucks for heavy transport and aircraft for regional traffic. In these areas Saab-Scania products have earned a reputation for technical innovation and qua

ind quality. In the field of specialized transport technology the symbol of Seab-Scania is the sign of technical innova tion and financial strength.



The Saab-Scanie Group manufactures automotive and aerospace products passenger cars, trucks and buses, military aircraft, missiles, setellites and the Saab SF340 airliner. The Group also develops other advanced products in the fields of electronics, optics, sensors and image processing as well as in the area of energy technology.

We employ 47000 people in locations in Sweden and 30 other countries (GBP 255.2 m.). Return on total assets was 14.5 percent solvency (equity/asset ratio) w 50 percent and capital expenditure amounted to 4.4 billions (GBP 401.1 m.), equal to 13.8 percent of sales.



Embraer Tucano basic trainer is now being built in quantity by Short Brothers for the RAF

## IN AVIATION FINANCE THIS IS NOTIME TO BE FLYING A KITE.

New tax legislation, unpredictable cycles and interest rates, newer aircraft technology, the reticence of airlines to commit themselves for too long to a particular aircraft type ... These are just a few of the factors casting a shadow over aircraft resale values in the 1990's.

In addition, new lease accounting standards have increased interest in operating leasing and option financing.

No wonder risk capital is in greater demand - but is it available?

Aircraft financiers would undoubtedly feel more comfortable knowing they have an alternative way of looking at asset risk and a new way of writing a lease.

Clarendon Residual Value Insurance (RVI) is the bankable financial instrument that restores order and flexibility.

RVI guarantees a minimum value of an aircraft at a predetermined future date. It covers the final payment, so the asset itself has the ability to repay the lender. Clarendon provides the all-important, alternative balance sheet.

With the airline industry entering its greatest-ever expansionary phase and equipment replacement programme, this is no time for kite flying. Don't enter into negotiation without the facts on RVI.



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Aerospace 13

### The US

# Sharp variations in earnings

companies which still have a part to play in the commercial airliner sector and those which are connected with the defence or space business. Growth in the two areas tends not to run in tandem, and the differences in the cyclical be-haviour of the two industries have begun to show up, particu-larly in recent months. In the commercial airliner business, 1986 holds already as though it will be an outstanding year, with both orders and pro-duction up on the healthy

duction up on the healthy figures generated in 1985 as the world's airlines moved into a period of extensive aircraft re-

The benefits of this boom, however, are spread very thinly in terms of airline manufacturers and are concentrated on the two big US companies which remain in large-scale manufacturing-Boeing and McDonnell Douglas. Between them, these two companies amounced a propeller-driver total of 507 zirliner orders last present range.

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year. The pronounced cyclical some analysis now question swings of commercial airliner will remain indefinitely in the production are amply illustrated in Boeing's financial perfor-mance over the last five years. The Seattle-based group already has about 70 per cent r plummeted from peak carnings of its sales tied up in military d af \$600m in 1980 to a low of \$566m last year. That forms last

55660 last year. That figure looks set to be easily excelled this year, when the group achieved net income

AEROSPACE manufacturing in capital commitments and tight Airbus consortium in a deal years ago. But it will put pres-the US has become increasingly managerial controls, have aimed at mounting a concerted sures on margins—a point polarised in the past decade or forced most of Boeing's early attack on Boeing's pre-eminent which was evident in the first-go, divided between the very few rivals out of the business. companies which still have a Even McDonnell Douglas has Boeing fiself, despite its the big military suppliers.

in the world offering a variety of thread intering a variety of the business. Even McDonnell Douglas has position. posi

An outstanding year is expected for airliner production but defence orders are now falling

products from the 100-seater 737 to the Jumbo 747, capable of taking up to 550 passengers. Boeing recently added to its potential range by acquiring De Havilland, the Canadian mann-facturer of short take-off and landing and other commuter take part in the development of aircrart, a deal which will add

aircrart, a deal which will add a number of short-haul, propeller-driven aircraft to its In the defence sector, the aerospace companies are now

and government contracts, has had trouble selling the concept of its planned new MD-11, a 300 seat derivative of the DC-10,

Additionally, several of these companies are having to trim back prices because of the Pentagon's recent accusations of inflated billing on some con-

of inflated billing on some con-tracts, and they stand to lose from the proposed new tax Bill going through Congress. The rundown of military con-tracts may be one of the reasons why several companies appear intent on diversifying either outside or inside the defance sector. McDonnell Denging for according hourht either outside or inside the defance sector, McDonnell Douglas, for example, bought Hughes Helicopter two years ago; and General Dynamics, having swallowed Chrysler's tank business in 1982, acquired Cessna, the light aircraft manu-facturer, last year.

> Airborne Early Warning and Control (AWACS) missions has been offered

to the UK Ministry of Defence as an alternative to the Nimrod programme. The P-3 is currently operated as a maritime patrol aircraft by 10 nations including the US.

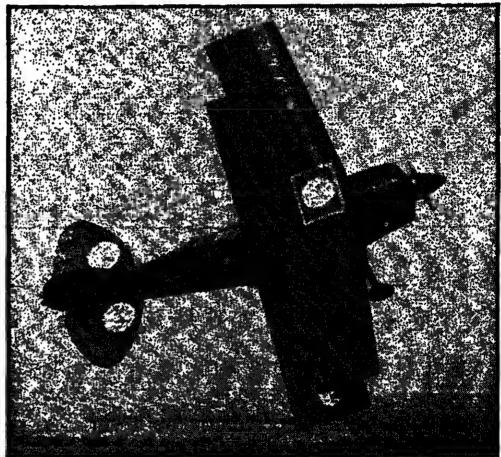
**Right: The Pitts** series of single-seat hiplanes, built by

Gates Learjet has suffered particularly heavily from the collapse of the executive jet

try, accounting for \$18.8bn of overseas sales in 1985, against only \$5.6bn of imports. Total sales are now approaching \$100bn, and in recent years it has been an important job

it has been an important job creator, increasing employment from 69,000 in 1984 to 75,800 last year. In the current year, the US Department of Com-merce expects the industry to grow et an inflation-adjusted rate of 4 per cent.

**Terry Dodsworth** 







XIII

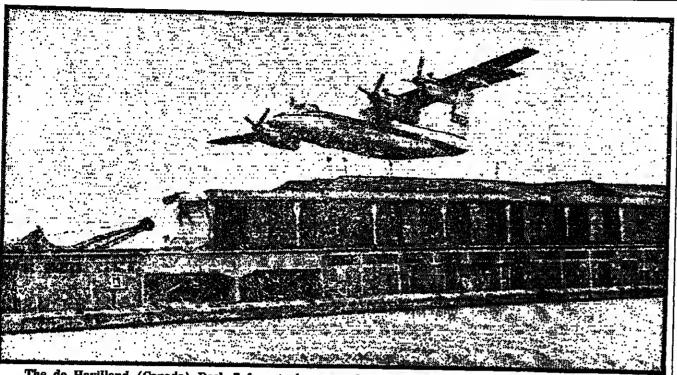


US aerospace companies-1985 results

| Boeing<br>McDonnell Drugias<br>Lockbeod<br>Northrop<br>Grumman | 1985 sales         1984 sales           (\$ma)         (\$ma)           13,638.0         11,129.0           11,472.7         9,662.6           9,535.0         3,113.0           5,056.0         3,687.8           3,098.9         2,603.6 | % change<br>en year<br>+ 22.5<br>+ 18.8<br>+ 18.9<br>+ 37.0<br>+ 19.0 | 1935<br>carnings<br>(3m)<br>566.0<br>345.7<br>401.0<br>214.4<br>81.5 | 1964<br>carnings<br>(\$m)<br>390.0<br>325.3<br>344.0<br>166.9<br>108.4 | % change<br>en year<br>+45.1<br>+ 6.3<br>+17.0<br>+28.5<br>-24.8 | 1985 total<br>backlog<br>(\$bn)<br>26.7<br>23.9<br>17.9<br>n.e.<br>5.4 | 1985 funded<br>backlog<br>(\$bn)<br>24.7<br>16.6<br>9.0<br>6.6<br>R.a. | 1984 total<br>backlog<br>(\$bn)<br>п.е.<br>22.5<br>23.9<br>п.е.<br>5.1<br>Research: Riv | 1984 funder<br>backlog<br>(\$bn)<br>21.5<br>15.0<br>9.4<br>2.4<br>8.4<br>n.2.<br>ks Nachoma. |
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### Aerospace 14



The de Havilland (Canada) Dash 7 four turbo-prop, short-haul and short take-off/landing airliner

#### Canada

# Continuing role for public purse

contract.

Broadly, the industry, from

The industry comprises more live aircraft. The industry comprises more than 100 companies, some sub-sidiaries of international con-cerns, gronped together in the Aerospace Industries Associ-ation of Canada. Sales will be about \$4.5bn in 1936, about 50 per cent for export, and employ-ment more than 46,000. Gradually, these companies are becoming more reliant on in partnership with Montreal becoming more reliant on in part defence orders, especially from Interest the US.

The Progressive Conserva- a valuable contract for the tives came to power late in 1984 maintenance of Canada's F-1g and inherited the problems of the two airframe companies, the government's sagente Canadair in Montreal and De belp the government's sagente Havilland Canada in Toronto. popularity in Quebec though it may peeve some other parts of the country. Roth had been taken over by Ottawa to save them from collapse during the 1982-83

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executive jet, then baving formance inter-continental jets teetbing problems, and for will remain volatile, and com-DHC's Dash-7 and Dash-8 com- petition from the US and

THE FEDERAL government's versy bas died down as order invested. Because the light- Whitney Canada, is shifting privatisation programme is re- backlogs for the twin-engined twin belicopter market bas re- gradually towards fully com-sbaping important parts of Dash-8 have risen and Boeing mained so sluggish, Bell Tex- puter-controlled manufacturprivatisation programme is re-stapping important parts of Dash-8 have risen and Boeing Canada's aerospace industry, but the role of the public purse will continue to be vital for the

gers-creating a more competi-tive aircraft. The choice of the buyer for the Canadian-engined twin 400 C\$2bn Sea King belicopter rein partnership with Montreal

placement programme for the Whether Canadair would get coastguard Both the federal and Quebec governments will continue to make support payments to com-plete the Mirable plant, in parallel with Bell Textron (Canada), but defence orders will be important for its longfighters is not clear, but the term success

the country. Whoever wins Canadair will recession. In effect, Ottawa assumed fence activity to carry the chal-hearly C\$20n in development lenger in the medium term, costs for Canadair's Challenger since the market for high-per-

The new government decided The new government decided to take the privatisation ronte. First it moved to sell DHC to Boeing in preference to a Cana-dian consortium. Initial contro-Where C\$250m has already been gest single unit, Pratt and

tron Canada is moving produc-tion of two series of commering. The company is shifting pro-

cial light helicopters from Fort duction of its small fanjet Worth to Montreal, while it engines to Torouto to make continues development work on room in Montreal for its PW100 series for commuter aircraft. It maintains Canada's second-largest industrial research operation in Montreal and 'oronto.

The industry is roughly div-ided with balf in Quebec and the Maritimes and balf in Ontario and the West. McDonnell Douglas Canada in Ontario is busy making wings and other parts for the parent's success-ful MD800 series, and a bost of parts and materials suppliers, engineered products, avionics and electronics producers are gearing up for better times.

The low-level air defence system contract, the Sea King replacement and Canada's space A smaller belicopter plant in Ontario, owned by the West German-controlled MBB Aerostation programme will pro-vide several billion dollars of underpinning in the medium-term. But one conspicuous suc-cess is the CAE Electronics division of CAE Industries, space Canada, and begun after Mirable, is already in produc-tion, handling a C\$23m federal which has carved itself an enviable niche as one of the world's three makers of simu-lator equipment for commer-cial airlines and mililtary use.

#### **Robert Gibbens**

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### Soviet Union

## Designs match best in the West

and scope the crospace industry SIZE Soviet aerospace clearly metches that of the about civil and military aircraft US, scross the whole spectrum US, scross the whole spectrum is reedily available in the tech-of civil and military aircraft nical press; while the big air and engines, guided weapons shows, such as Farnborough, and spacecraft, as well as in Hanover and Paris, pour out in-avionics and releted industries, formation, especially on civil air-Detailed information is hard to obtain but it may even exceed the US eerospace industry's output in

some areas, such as tactical military combat aircraft, reflectsoviet gross national product devoted to military production of all kinds.

This is suggested by statistics prepared by the US Department of Defence, comparing aircraft turn. production in the Soviet Union Wh and Nato countries. They show that in 1984 the Soviet Union produced some 900 fighters and fighter-bombers, against Nato's 525; 300 transport aircraft, against Nato's 250; and some 300 belicopters, against Nato's

The total of Warsaw Pact military alrenaft is nearly 13,000, compared with Nato's 11,000; while the number of Warsaw Pact combat aircraft in place in Europe exceeds that of Nato by a substantial margin. Nor is this advantage in numbers due in any way to lower quality in e bid for quantity. Many gurant Societ

quantity. Many current Soviet civil and military aircraft designs, as seen at recent Western air displays, are of a high standard of technical

excellence. This is a radical change from the position some years ago when, undeniably, the manufacturing finish on some Soviet aircraft shown in the West was inferior to that of the US and UK aerospace industries. Clearly, the Soviet Union has paid considerable strention has paid considerable strention to quality and operational perfor-mance, and today its designs match the best available in the West

This is probably due to two factors: first, the substantial amount of money devoted to defence production in the Soviet Union, and particularly to military aircraft; and second, to military aircrart; and adde to the massive efforts made to modern Western

acquire modern technology. In many cases, this is not difficult. Freedom of informa-

craft, in a manner unknown in the Soviet Union. While so-called "missions," come to those air shows, and major new Soviet aircraft are occasionally displayed as pub-licity exercises, the primary purpose is to gather as much in-formation as possible about what is going on in Western aerospace, while offering the minimum information in re-

Where information cannot be obtained in such an open man-

ner, the Soviet Union does not besitate to use other techniques. The US government, in its most recent analysis, Soviet Military Power, states: "Through both legal and illegal acquisition of modern western production techniques, the Soviets are establishing

the Soviets are establishing more efficient, integrated and technologically advanced capa-bilities for the production of highly sophisticated weapons," The same document says that, "throughout the last decade, the Soviet military has absorbed an increasing show of the an increasing sbare of the nation's gross national product, a share now estimated at 15 to 17 per cent." This compares with about 6-7 per cent for the

The sustained Soviet economic commitment to the military is further revealed by the flow of resources to, and growth of, the machinery industry. This key sector of the economy, broadly divided into military and civilian machinery produc-tion, is the source of the Soviet Union's military weapons, civilian investment goods and consumer durables. The machinery continuent machinery sector continues to experience the most rapid growth in the economy: in 1984, when overall industrial growth

was 4 per cent, the machinery sector expanded by some 7 per cent," says Soviet Military

a belicopter producer. MiG, the famous fighter-pro-ducer, was founded by the late Artem Mikoyan and Mikhall Gurevich. Its latest product seen in the west is the MiG-29 Fulcrum fighter eent," says Soviet Military Power. "The military machinery proportion of this sector now accounts for 60 per cent of total machinery ontput, and has been receiving nearly all the addi-tions to the machiner certain Fulcrum fighter. Mil, founded by the late Mikhail Mil, is also a belicopter producer, but is engaged in bigger, beavier ones than Kamov. They include some of tions to the machinery sector's

tion in the West means that labour force, leaving little or the biggest in the world, such enormous quantities of data no labour growth for the as the Mi-26 eight-bladed rolor about civil and military aircraft civilian sector." no labour growth for the as the Mi-20 eignessage rotor civilian sector," heavy-lift aircraft; and the Mi-Whatever the Soviet methods 10K, built for lifting heavy and of acquiring information, the bulky loads. fact remains that the output of Myasischev, founded by the its aerospace industry is for-late Viadimir Myasischev, has mideble in quality as well are a limited output which its industry.

midable, in quality as well as a limited output which inclu quantity. This applies as much the big four-jet strategie by to space hardware as it does to civil and military aircraft, aircraft, engines and guided weapons. The etructure of the industry is different from that of the Weet where ware (addidated builder, whose latest weapons) the big four-jet strategic bom-ber, tanker and reconneissance

Sakhoi, named after. Pavel Sukhoi, is a major fighter builder, whose latest venture is West, where many individual the Su-27 Flanker counter-airfighther.

companies, either state-owned or private, compete for major orders. In the Soviet Union, the industry consists of a num-ber of major" design burgent" ngniner. **Tapelev, founded by the late** Andrei Tupolev, is a major builder of transport aircraft and bombets. Major ventures have included the Soviet rival to the Concorde, the Tu-144, which had only a short period in service. Tupolev's reputation is more securely built on such the industry consists of a num-ber of major "design bureaux," most of which were established by famous designers whose names are perpenated in the organisations, and which speci-alise in particular types of air-craft. Competition is kept to a minimum. is more securely built on su major airliners as the Tu-154 tri-jet, and on such bombers as the supersonic Blackpack. These aircraft bureaux, in alphabetical order, are:

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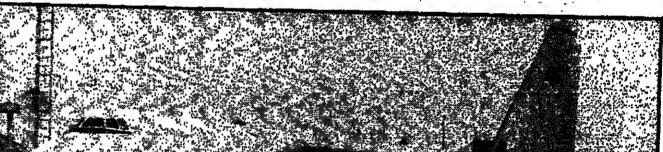
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alphabetical order, are: Antonov, based at Kiev, was founded by the late Oleg Antonov. It is primarily a builder of transport aircraft for civil and military purposes. Some are unique in design, such as the An-72 twin-jet short take-off and landing transport, with engines mounted on top of wings that are set high on the fuselage. The letest Antonov product is the An-124 Condor, a strategic beavy transport that Yakovlev was founded by Alexander Yakovlev, who still runs it. Its versatility has pro-duced such eircraft as trans-ports (the Yak-42 trijet Clob-ber airliner); combat types, like the Yak-38 vertical take-off thinkerne fighter (Frame A). ship-borne fighter (Forger A); and light aerobatic and sporting aircraft . a strategic beavy transport that is the beaviest transport air-craft in the world, and which is expected to be seen at Farn-

Soviet aero-engine capability is also substantial, with such major bureaux as Isotov, Ivchenko, Kuznetsov, Lotarev and Soloviev (elthough there Beriev, founded by the late Georgi Beriev, and based at Taganrog, is primarily a pro-ducer of amphiblous aircraft. Hyushin, founded by the late Sarcai Dunchin is also mainly are others) meeting the entire needs of the aerospace industry. What is significant about these manufacturers is that they are all substantially self-contained. Unlike the West, where there is a major and growing international trade in aircraft parts and engine equipment, and even in manufacturing collaboration, the Soviet Union buys little from outside, although some procurement from the West is not unknown. This is partly dne, bowever, to the western strategic arms em-barge on trade in sensitive tech-noligical items to the Soviet Union: although, as already mentioned, the Soviet Union conducts a considerable clandestine business in acquiring western technological knowhow.

**Michael Donne** 



borough.

Sergei Ilyushin, is also mainly a transport aircraft builder. Its most famous recent products in-clude the IL-86 four-jet wide-bodied transport, of which a

longer-range derivative, the IL-86 is under development.

Kamev, originated by the late Nikolai Kamov, is primarily

XIV





The Shin Meiwa US-1 amphibious search and rescue aircraft

search aircraft, but the agency bopes it will lead to commercial development within three years of so. KHI is also the lead contractor for the totally indigenous T-4 jet trainer. More than 200 are to be manufactured

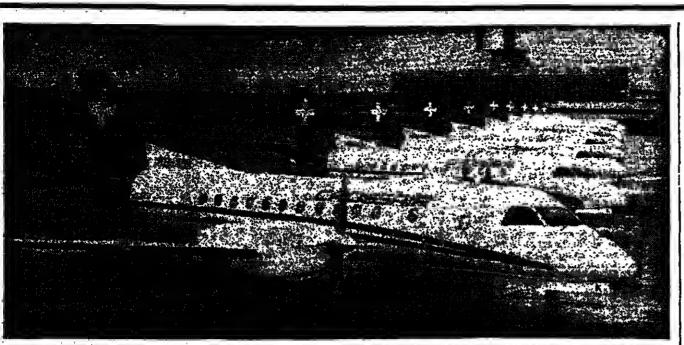
into synchronous earth orbit. Until now, all Japanese roc-kets have relied almost entirely on US technology, and so Japan has not been allowed to launch satellites for third countries or export satellite technology and equipment. But the H-2 rocket now under development relies entirely on Japanese techno-logy and is intended to put a 2,000 kg payload into synchro-nous orbit by 1991. Despite the recent probleme

Despite the recent problems in the US and European space programmes, Japan is pushing ahead with its programme to build a pressurised space pressurised

a US-1 amphibious search and rescue aircraft
The first 100 per cent Japan-ese satellite is due to be launched in 1991. Significantly, i it will be launched in Japan's first entirely home-made large
a rocket.
Japan's space agency has long rocket experience going back to t 1975 when it launched the small N-1 rocket. This mouth it was due to launch its H-1 rocket, which is powerful en-n ough to put a 550 kg payload into synchronous earth orbit.
d Until now, all Japanese rocmodule (JEM). MHI is the co-ordinator on the YZ40his pro-ordinator on the YZ40his pro-ordinator on the YZ40his pro-ordinator on the YZ40his pro-ordinator on the YZ40his pro-sector which will be part of the station.
Even though Japan has a space sector frictions are grow-ing. The US understanding regards this as a sector in which so expects Japan to buy Amari-can rather than try in catel ip.

Last month Mr Malcohn Bald-rige, the US Commerce Society tary, complained again that Japan was trying to avoid sury ing US satellites. But the main focus of this tension today is the Japan De-fence Agency's desite be burn new fighter aircraft to replace list ageing floet of 7D Missi-bishi F-Is. The industrial anab-lishment is pushing hard for a decision in favour of the NSC under development by Miss. under development by atti-but the US wants Japan to buy F-16s or F-18s

Ian Rodger



The Saab SF-340 twin thrbo-prop regional and commuter airliner is now increasingly used in Western Europe, the US and elsewhere. This line-up of 10 SF-340s shows the Crossair, Switzerland, fleet

#### Sweden

## Shift to civil aircraft building

The centrepiece of SAAB. drop from SKr 133m on sales Scania's expansion into the civil of SKr 1.92bn in 1984 to SKr sector is the SF-340, a 35-seat 100m on sales of SKr 3.2bn in sector is the SF-340, a 35-se twin turbourop commuter air-craft, built in collaboration with when SAAB saw was becoming dangerously fore making a profit on the overdependent on orders from the Swedish Air Force at a previously estimated at 200 sh-time of rising military R&D and production costs, and con-stricted defance spanding. When the SF-340 went

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stricted defence spanding. When the SF-340 went halo production in 1984, it also con-veniently covered a hall be-tween the company's production phase-out of the Viggen fighter in the mid-1980s and start-up of the multi-purpose JAS 39 Gripen comhat aircraft in the 1980s.

1990s. But a major problem appeared last November when Fairchild withdrew from the project, citing economic burgen of manufacturing the attractional SKr 600m, raising its additional SKr 600m, raising its total project cost to SKr 20m. Although Fairchild paid SAAB \$22m when it dropped out of the project, this only attractional state of the project cost to state of the project cost to state of the project the source of the project the source of the state of the state of the project the source of the state of

SWEDEN'S AEROSPACE in-factory and other production dustry is continuing to shift the facilities necessary to complete emphasis from military to civil the project. The new invest-aircraft production, but the ment puts increased financial past year has proved that such pressure on SAAB's flight divi-a transition is not always easy. slon, which saw its net income s of companies working on the Boeing 737 prop-fan airliner and will provide airframe parts, amounting to a 4 per cent interest in the project. However, its planned particl-pation in production of the McDonnell Douglas MD-11, for which it was expected to make the tail fin, is now uncertain following the Swedish govern-mant's refusal to provide a 1985 due to the start-up costs for both the SF-340 and the

ment costs.

to 35 per cent of the world market for commuter aircraft and that SAAB must compete of the decade when more than against the De Haviland Dash 8 80 per cent of its sales were and Embraer's Brasilia 120. SAAB has delivered 61 SF340s

and firm orders take the total to 90. Those in service have been plagued by technical prob-lems centring on the aircraft's

It has also joined the team Ericsson is producing the radar, of companies working on the sensor and target acquisition systems as well as the cockpit display.

The programma threatened last year by a cost overrun due to dollar-denominated foreign contracting, which includes GE, Lear Siegler (electrical flight systems) and British Aerospace (development of an all-composite wing). But the steady fall of the dollar against mant's refusal to provide a the krona this year has bridged SKr 400m loan to cover investtha budget gap temporarily at least.

With the SF-940 in full pro-duction and the company sup-plying airframe components for SAAB is pinning export hopes on the JAS 39 despite the fact that it has not success fully sold any combat aircraft the MD-80 and the BAe 146, SAAB's husiness is now evenly balanced between the military and civilian sectors, the goal it set for itself at the beginning abroad since the 20-year-old Draken. SAAB believes that the JAS 39's combined role as a fighter, ground attack and recomaissance alteraft together with its easy maintenance-simple enough to be performed Strategic ventures outside Europe military-related. But SAAB's-and Sweden'sby conscripts-will make it ideal for smaller countries. single biggest aerospace pro-

Volvo Flygmotor has also WEST GERMANY's been increasingly shifting its acrospace concern, attention to the civil sector, schmitt-Bolkow-Blohm which now accounts for 40 per spreading its wings i cent of sales. It is cooperating with GE, Pratt and Whitney and Garrett on a range of engine programmes for passenger aircraft.

A milestone in the Swedish aerospace industry was marked this year with the launch of the scientific satellite Viking m February, the country's first.

station

WEST GERMANY's leading Technology, Mr Jusef Habibie aerospace concern, Messer-schmitt.Bolkow-Blohm (MBB), craft. Until now mainly responsible for the fuselage, Dentsche Air-bus has said it is prepared to spreading its wings in recent months, has embarked on two strategic ventures aimed at opening up important new

non-European markets. One big breakthrough came this spring at the Hanbover International Air Show, where the group signed an agreement

These deals are particularly build other key sections, such important in broadening the as parts of the wing, helped by base for MBB which, with a long-term repayable grant of annual sales of about DM 6bn, some \$1bn from Bonn,

companies, its expansion was aritime, may emerge as tha cramped by post-war Allied realing the economic viability of strictions which worked to the ing the economic viability of benefit of its British and the project.

has been operating largely in a European context. Like other German aerospace that Lufthansa, the state-owned

Out of a total industry There are strong indications

employment in West Germany of some 71,000, space-related activities are providing only some 4,300 direct jobs, although Germany is participating in the key Enropean space projects including the recently an-nounced \$3bn Hermes manued shuttle for the mid-1990s.

While MBB remains the country's dominant aerospace cern. it has b en faced in

the past year with a challenge

## Hard choices on collaboration THE

France

FRENCH whereas British Aerospace's satellite agreements are with Matra. aerospace On the other hand, Dassault-

industry is approaching a cross-roads in the sky. The sector, which has long been one of the most dynamic and internation-On the other hand, Dassaut-Breguet, the military aircraft maker in which Mr Marcel Dassault, its founder, never loosened control up to his death in April, has provided a countermost dynamic and internation-ally successful areas of French industry, faces a number of difficult decisions over foreign collaborative projects which could spell make or break for the 1990s. The industry has managed up to now to haltone the alterna example by forging a go-it-alone

Aerospace 15

to now to balance the alterna-out the 1960s and the 1970s be-tive challenges of competition came symbols and sometimes and collaboration with a reason-able degree of Success. Account of Success. Account of Success. able degree of success. France Aerospatiale, the state-owned policy.

Acrospaniale, the state-owned acrospace group, has become a pillar of European collabora-tion. It has forged strong links with Messerschmitt-Boelkow-Biohm of West Germany and with British Acrospace over projects as diverse as the Euro-

projects as divide and anti-tank missiles. The longer-standing contact with MBB-which go back to the birth of postwar Franco-German aerospace and ing to change course. Two events illustrate the increasing pressures faced by the arms co-operation, at the end French industry. The presance of the 1950s, are underlined by of Chancellor Helmut Kohl at the links between the two com-panies in satellites as well,



The latest venture planned by Europe's Airbus Industrie is to develop in parallel both the A-330 short-haul high-density twin-engined jet and the four-engined long-range A-340, using common wings, fuselage and systems

#### West Germany

German sero be trying to take a much larger share of the cake in future

path. The Dassault Mirages through-

the A330 and A340 — cur-rently on the drawing board. The other event was Dassault'a offer at the Jakarta air show a few weeks ago to belp construct a mooted fighter to be built by the fieldgling Indonesian aerospace industry. The idea of Dassault offering its carvings as a sub-outpactor Now, however, faced with in-Now, however, facta with the creasingly aggressive American competition on world aerospace and defance technology mar-kets, and shrinking budgets among some of France's tradi-tional clients in the Third World Descentic closely is how

its services as a sub-contractor "would have been unthinkable even a few months ago," says a top executive at another big World, Dassault clearly is hav-French aerospace group. Dassault's stubborn refusal to

give up its claim to leadership in the long-running negotiations over the European fighter

share of the cake in future Franco-German collaborative agree-ments with northern European countries including Belgium, be Netherlands, Norway and occurred in recent months as a result of difficulties with the Franco-German project to build a joint attack balicopter for the 1990s, as well as wrangling over the A330 and A340 — cur-rently on the drawing board. The other event was Dassault'a offer at the Jakarta stake in the four-nation fighter to be built by Britain, West Germany, Italy and Spain.

This means that the Rafale follow on and the EFA will both be slugging it out ou world markets in the 1990s-a prospect which adds to the possibility that Dassault will try to make the planned lighter version of the Rafale as attractive as possible for export customers

One intriguing idea being examined is that Dassault could go into partnership with a US company such as Northrop for work on a 1990s fighter. A strong exampla of US-French co-operation bas already been set by links between Sneema and General Electric in the aero engine field.

As Faris and Bonn do their best for political reasons to keep tension between their two countries' aerospace industries under control, France might find some logic in seeking greater rapprochement with the US aerospace industry in coming years.

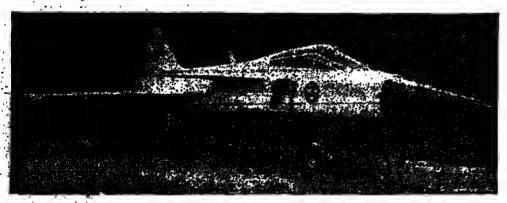
For instance, French officials strongly back Airbus Industrie's contacts with McDonnell Douglas over possible co-operationalthough they say there is no question of allowing any delays for the A330 and A340 programmes.

**Paul Betts** 

to bave been a mistake Dassault is now looking for possible collaborative agree

XV

partially covers the cost for McDonnell Donglas MD-91X producing the single jet engine the construction of a new wing prop-fan programme. based on the F404 and LM the construction of a new wing prop-fan programme.



The Saab JAS-39 Gripen supersonic multi-role combat aircraft is now under development in Sweden, and will make its maiden flight next year

Republic of China to jointly develop a new 60-85 passenger SAAB's space subsidiary was the project's prime contractor. prop-fan regional airliner.

Sweden's next space project is the Nordic telecommunica-tions and broadcast satellite scheduled for launch in 1987. SAAB is a subcontractor in the SKr 1.5bn programme with the prime contractor being with the prime contractor being France's Aerospatiale. Sweden is financing 80 per cent of the Tele-X budget with the rest shared by Norway, Finland and possibly Denmark. Sweden is also planning to office in Hamburg.

spend SKr 1bn, divided 60/40 between industry and govern-ment, on European Space Agency-related activities by 1990, including the Arlane Launcher, the Hermes Space Launcher, the Hermes Space Sbuttle and Columbus space

Beyond China, Mr Hanns Arnt Vogels, MBB's chairman, says he envisages a "worldwide demand " for as many as 1,000 of the aircraft in the 1990s, not least from developing countries. A final decision on the \$1bn project, expected early next year, will follow feasibility studies now going on at a joint

John Burton

French competitors. It has managed though to find a place in the international acrospace league by participating in 8

series of joint ventures. The group is prime German contractor for both the Euro-pean Airbus civil aircraft ven-ture—in which it holds a 37.5 per cent stake—and the three-nation Tornada multiers airc nation Tornado military air-

craft. side, new-generation aircraft are being developed for the next decade. Deutsche Airbus, the consortium's Common Another important deal was Another important deal was are bei announced in Jakarta. MBB, next de together with Boeing of the US, the bas signed an agreement with partner Indonesian Stata Aerospace to seeking develop an 85/90-seat commer- particip cial aircraft, using prop-fan civil p technology, to be in full pro-medium duction in the early 1990s. long-ran The potential market, accord. combine ing to Indonesia's Minister of \$2.5bn. partner owned by MBB, is seeking to increase its overall participation in the two new civil projects, the short- to medium-range A-330 and the long-range 340, which bave a combined development cost of \$25hn

On the military side, production of the Tornado strike air-craft may stretch beyond the original 1969 date thanks to

costs.

are to participate as the German partners to Britain,

Spain and Italy.

in the form of a powerful new industrial concentration. Daimler-Benz, the car, bus important export orders includ-ing some 100 fighters destined for Saudi Arabia. But another and truck builder which is one of the nation's biggest industrial concerns, last year took control first of Motoren-und-Turbinen-Union (MTU), which order, for 40 aircraft from Turkey, has apparently run into a dispute over financing. is the dominant aero-engines The group's planned joint venture with France to build an manufacturer, and then of Dor-nier, the then-family-owned air-

anti-tank and combat helicraft producers. copter has also been bedevilled by rows over equipment and specifications as well as rising The two companies had combined sales last year of DM 4.4bn, Moreover, it has In the longer-term of course, lies the new European Fighter Aircraft or Eurofighter project, in which both MBB and Dornler

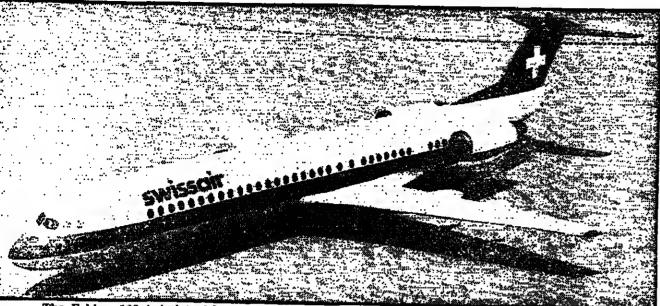
recently emerged that Dornier may be preparing to take a 20 per cent stake in Deutsche Air-bus from MBB, assuming the A330/340 project goes ahead.

**David Brown** 



#### IVX

### Aerospace 16



The Fokker 100 twin-jet airliner, now under development, shown in the colours of Swissair, one of the major customers, with deliveries starting next year

#### Switzerland

## Contracts agreed just in time

SWITZERLAND'S small aero- Tucan space industry, concentrated the F within the Oerlikon-Bührle, PC-9. which the oernon-burne, group, has experienced much re-lief this year with three important contracts being con-cluded in the nick of time. Two were for the Pilatus PC-9 primary trainer and tha third was a breakthrough order from Canada for Oerlikon's new Adats guided missile system.

None contributed to the in-crease in net earnings in 1985 which persuaded Oerlikonwhich persuaded Oerlikon-Bührle to resume dividend pay-ments to sharebolders after a two-year lapse, but they cer-tainly helped to set the mood in which the Board took its de-cision. cisloo.

Pilatus secured its contracts Pilatus secured its contracts with Australia and Saudi Arabia. The Australian order, valued at AS230m, is a liceos-ing deal under which 67 PC-9s will be built hy Hawker de Havilland of Sydney for the Australian Air Force. It entails work equivalent to

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will be built hy Hawker de Havilland of Sydney for the Australian Air Force. It entails work equivalent to manufacturing between 15 and 20 aircraft for the Pilatus plant at Stans, just ontside Lucerne, where the production line is being expanded. The PC-9 turbo-prop trainer was developed in collaboration with British Aerospace to bld for the RAF's order for a new primary trainer. It suffered a setback when Britain's Defence Ministry decided to award the contract to Brazil's Embraer

Tucano despite, the Swiss claim, The SFr 1bn (\$580m) order range and more accurately, and the RAF's preference for the that Oerlikon's military products against surprise attack by

However, Pilatus' co-operation with British Aerospace brought it into the massive deal under doubtedly weighs heaviest in the group's business strategy. which Britain is to supply Saudi Arabia with 132 military air-craft. Pilatus will provide 30 PC-9s as the primary trainer in-volved in the deal alongside the 30 advanced Hawk jet trainers. The value of the contract for the Swiss has not heen dis-closed but can be estimated at about SFr 110m (\$65m) and all 30 aircraft will be built in Switzerland. which Britain is to supply Saudi It was the first contract for the Adats (air defence and anti-tank system) in developing which Oerlikon has invested more than SFr 500m and it was won in very tough competition with US and other manufac-turers, among which Sweden's

Switzerland. With several unpublicised smaller deals, Pilatus now has orders for nearly 130 PC-9s and is expanding the production line deal can unlock contracts with other Nato countries, among which Belgium, the Netherlands and Turkey bave been menat Stans to be able to build 30 a year by 1937, when it should be turning a profit on its new tioned. Adata is also being tested by the US army. trainer.

To win the Canadian order Oerlikon formed a consortium with Litton Systems Canada and agreed to establish a company in Canada to assemble Adats units in a plant to be built at St Jean-sur-Richelieu, Quebec, The company will aim at win-

that Oerlikon's military products against surprise attack by division secured in April to armed belicopters. supply Canadian land and air It can also he used against forces in Europe with a low-level air defence system un-doubtedly weighs heaviest in the than those of existing anti-tank systems, according to Oerlikon.

Adats' main components are a search and acquisition radar which can handle up to 10 tar-gets simultaneously from tha earth's surface up to an alti-tude of 6,000 metres and a range of 20 kilometres and electro-optical module with a Flir (for-Bofors proved to be the closest. ward-looking infra-red) imager, Oerlikon hopes the Canadian an infra-red television camera and a carbon-dioxide laser for missile guidance and missiles with solid fuel boosters capable of accelerating them to a veiocity of more than Mach 3 within

the electro-optical module are affected by any known jammers and the proximity fuse on the missile is immime to jamming or deception by any currently-known electronic counter mea-

The Adats was developed in partnership with Martin Marietta Aerospace of the US. Oerlikon claims that it offers a technological leap ahead in proand a three-man crew, weighs barely four toones and can be technological leap anead in pro-viding ground defence against low-level strike aircraft, which have now acquired the ability to release weapons at greater fitted to light wheeled vehicles. tracked or

William Dullforce

Spain

# Combat aircraft of great importance

Fernando de Caralt, Casa's chairman, talks of the company being at "a half way stage" and on "a frontier line."

Mr Caralt'a frontier marks the division that a medium-sized European national company

may face between "just getting by," as he puts It, and "being well and truly solid." By 1990, Mr Caralt claims, Casa will bave crossed the Rubicon. He expects, four years from now, to have doubled the company's income to Ptas 100bn.

The 1985 results were upbeat and gave substance to such targets. After dipping into Pta 270m losses the previous year, Casa returned pre-tax profits in 1985 of Ptas 1.6bn, the highest annual profit in tha company's history.

Total income was Pta 47.8bn Total income was Pta 47.8bn against Pte 42.6bn in 1984 and orders at the end of the year were up 30 per cent to total Pta 77.8bn. Cashflow in 1985 stood at Ptaa 2.8bn, up from Pta 1.1bn the previous year. What Mr Caralt stresses about

present state of bealth is that the company hired more than 200 new engineers during 1985.

IN ITS report to shareholders "I need more grey matter and this year Constructiones Aero-nautics S.A., Casa, the Spanish be is building up to public-controlled aerospace com-pany, signalled that its future could be faced with a mixture of hope and confidence. Mr more." I need more grey matter and confidence. Mr more." Constructions and the McDonnell year when one was sold to the Swedish navy for the specific trainer specific Force has deployed in Europe. A further development is the diversification into missiles,

Ministry.

sector.

Meanwhile, Casa's C-212 Avio-

car, better known as the Jeep with wings, has been a consis-

tently good product: aturdy, versatile and competitive in the short-take-off-and-landing

A total of 22 Aviocars were sold in 1985 and a further 14 were sold in kit form. Orders

It is not surprising therefore that he terms a project to build from scratch a combat aircraft for the Spanisb Air Force "of thanks to the Spanish Government's purchase of 500 Roland missiles from the French-West capital importance to our German Euromissile consor-

future." tium. Under the terms of the purchase, Casa is to be involved in the manufacture of a further The new aircraft, codenamed the AX, is presently at the design stage. It is intended to replace the Air Force's F-5s and it will be the result of the 6,000 Roland warheads for export

growing technology that Casa has acquired. Casa is particularly proud of

Casa is particularly proud of the carbon fibre expertise de-veloped by its research depart-ment. The Spanish company has taken advantage of spin-off deals that followed Spain's pur-cbase of 72 F-18A Tomcats, built by McDonnell Douglas, to supply directly the flaps, fuse-lage side panels and stabilisers of the US combat aircraft. The stabiliser technology is

The stabiliser technology is now being pat to use in the Airbus projects in which Casa has a 4.2 per cent stake, and carbon fibre will be also applied. Casa expects, to the Eurofighter project in which the Spanish company has a 13 per cent stake.

continue to coma in and at the latest count there are 390 C-212s flying in 35 countries. per cent stake. In addition to the European

The Jeep with wings gave a new twist to its versatility this

6

received a fillio this year with the purchase of 16 sircraft by the Jordanian Air Force. Casa executives are anxious to follow. up this deal, a hreakthrough for the company in the Middle East, with further sales to Arab nations. The C-101 is primarily used by the Spanish Air Force and has also here sold in Tatte

has also been sold in Latin America. The Spanish aerospace com-

pany will be building on this technology transfer to develop a wholly Spanish programme for portable surface-to-air, 2,000-3,000-metre range, mis-ailes for the Spanish Defence Ministry However, the chief interest et present centres on the new pro-duct, the CN-235, which is e bi-motor commuter plane, that has been developed jointly by the Spanish company and by P. T. Nurtanio of Indonesia. More than 111 CN-235s have

been ordered, mostly through the Indonesian sales operation, The first units of the aircraft, which was rolled out in 1983, are scheduled to be delivered in November. The first client is Saudi Arabia.

Cass hopes that there will soon be firm orders for the sleek, 40-plus passenger plane on its home ground as Spain's regionel, inter-city airlines are built up.

**Tom Burns** 

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ning export contracts.

three seconds. A special characteristic Is the defence against jamming. Neither of the two senjors in

sures. Oerlikon says. The Adats is a modular sys-tem which in its basic form, equipped with alght missiles

# נווב בבר בחו APPROACH.

den.

track aircraft from the ground, modern man would be lost without the aid of electronics.

Right from the beginning of aeronautics, the men who founded Thomson-CSF have taken part in the great adventure of aeronautics, designing avlation radiocommu-nications equipment. Thomson-CSF is the leading French company in the field of electronics for government and industry, and thus has acquired a unique experience which is now put to use on ali five continents. This experience has parmitted the development of highly efficacious and cost-effective systema.

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**THOMSON-CSF** 

# need to join development

Belgian aerospace — the Big Three

1979

3.17bn

1.87bn

3.21bn

Turnover

(BFrs)

1985

2.57bn

2.63bn

9.65bn

Source: Europeen Commissi

AS A SMALL country Belgium has always stressed the virtues

has always stressed the virtues of international co-operation. But while its principal role as sub-contractor to other people's aerospace projects has brought participation in major pro-grammes such as the F-16 fighter, the European Air-bus, and the Ariane space vehicle, dependence on the out-side world leaves its manufac-turers inherently vulnerable in a downturn. **FN** Moteurs (Fabrique Nationale)

There is, nevertheless, a growing awareness of the need to enter new programmes at the development stage, rather than simply buying in an aircraft designed and developed else-where and assembling the parts under licence.

Since the Second World War. Belgium's aerospace industry, which is based in the southern Which is based in the southern Walloonia region, has relied on "compensations" — work sub-contracted back to Belgian manufacturers as a guld pro guo for government orders placed on behalf of the Air

Force. Last year's BFr 50bn contract with General Dynamics of tha US for 44 additional F-16s was a case in point, the American company agreeing to place about 80 per cent of the business built 80 per cent of tha business back in Belgium. Local industry is already

Local industry is already looking for clues as to how tha Air Force will ultimately re-place these F-16s—it has about 120 in all—and the 30 or so Mirage jets, when tha need arises some time in the 1990s.

that discussions have been beld this year with both Dassault and British Acrospace, with a view to joining either the French

It is well known, for example,

This year with both Dassault and Britisb. Acrospace, with a view to joining either the French Rafale project or tha new Euro-pean Fighter aircraft (EFA) consortium of Britain, Germany, Italy and Spain. Observers feel that collabora-tion with the French is still the more probable—a stake in the Eafale project would almost certainly be less expensive than the EFA option (and thus attractive to a Government seek-attractive to a Government seek-Observers feel that collabora-tion with the French is still the more probable---a stake in the Rafale project would almost Nationala de Construction Aero-sectainy be less expensive than the EFA option (and thus attractive to a Government seek-t ing at every corner to trim the budget) while the French suitable for meeting Belgium's t Nato commitments. Although c early days, the discussions are a measure of the country's f keenness to participate in new programmes at an early stage. Tha other beacon of hope f or an industry which lives o primarily off defence orders is d the need to replace the armed forces' ageing belicopter fleet. The other beacon of hope t to ran industry which lives the need to replace the armed forces' ageing belicopter fleet. The other beacon of hope t to ran industry which lives the need to replace the armed

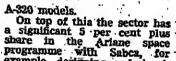
holders include several indus-trialists, investment companies and a bank, the aircraft has received substantial backing from the Government.

No. of

1,860

1,578

1,831



of programme with Sabca, for example, designing and devel-1985 oping the hydraulic servo-controls as well as the fins, fairings and the inter reservoir 1,337 skirts for the Ariane 4 vabicle. The "Big Three" may 2,308 dominate Belgium's aerospace industry but small companies are playing an increasingly important role notably in the North where the Flemish aeroemployees 1979 19 There are a number of possi-hilities. Sikorsky, for example, has suggested that it could huild North where the Flemish acro-space consortium FLAG, a grouping of more than 100 companies, reflects the recent change.

Formed in 1980, FLAG was a roughly 25 per cent share for its members of the "compensa-tions" guaranteed under last year's F-16 contract. FLAG's year's F-16 contract. FLAG's general manager Mr Herman Candries, is an enthusiastic disciple of the theory that developments in aerospace can be applied in other industries. Perhaps one of the most exciting developments, how-ever, is back in Walloonia where the Squalus civil and military trainer aircraft is expected to progress over the next few months. Developed by Pro-mavia, a company whose share-holders include several indus-trialists, investment companies.



WELLING MAR

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A new British airliner making its debut at Farnborough is the British Aerospace Advanced Anior Atimose (ATP), which made its maiden flight earlier this month. Its features include a new six-bladed Turbo properties and an advanced electronic flight deck. The ATP is one of the quietest airliners now flying

### Aerospace 17

#### The Netherlands

## **Construction delays hold up deliveries**

FORKER, the Dutch acrospace group, is levelling off after fly-ing high on a wave of initial orders for its new aircraft, the F-50 and F-100. Missed orders and construction delays have tempered the supborle atmo-sphere that surrounded a bulg-ing order book and wavend new order book and record pro-

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ing order book and record pro-fits last year. Now Fokker is concentrating on meeting its delivery time-table, putting finances in order and possibly expanding abroad —not to mention abtaining fresh orders. Hopes are pinned on several potential sales of the short to medium haul F-50 and F-100, which would be the first orders this year for the aircraft that were unveiled in the autumn of 1988.

autumn of 1983. One of the possible sales involves GPA, the Irish aircraft lease company involved in an embarrassing incident in June when newspaper headlines in the Dutch press suggested a record F1 4.80n (\$2.05hn) order for 100 eigenet Trading in for 100 aircraft. Trading in Fokker shares was temporarily suspended on the Amsterdam Stock Exchange, Fokker denied the story and a week later GPA Stock Exchange, Fokker denied both the F-100 and the F-50, the story and a week later GPA a 50-seat turbo-prop that is a ordered 96 aircraft from Boe- successor to the F-27 Friend-ing and McDonnell Douglas, the ship, were amounced 21 years American aerospace glants.

the late 1980s and 1990s. As modernised versions of the F-27 and F-28, they offer operating efficiency, passenger comfort and manoeuvring ease by using new composite materials of great strength and light weight as well as sophisticated cochpit electronics. Because the aircraft are based on existing designs GPA, which is backed by Guinness Peat and Aer Lingus, has said it is still interested in the F-100, a 100-seat twin jet that is a successor to the F-28 Fellowship. Fokker would

price.

craft a year.

are

Fellowship. Fokker would clearly welcome the business but is undarstandably quiet. Another disappointment was the recent decision by Scandi-navian Airline System (SAS) to buy 14 of McDomell Doug-ias's MD-87s instead of the F-100 fanjet. Fokker had been thought in have a good chance thought to have a good chance at the contract, which could have amounted to more than Fi 600m.

Construction delays in the F-100 have also proven disap-pointing. Deliveries of the air-eraft originally were to have been made in April 1987 to Swissair, the launch customer, but that has been delayed until the summers a bare deliveries the autumn as have deliveries to KLM Royal Dutch Airlines. Swissair has demanded Fl 500m in compensation for late delivery af the first af its eight F-100s and the question now is whether KLM will do the same. in 37 countries. ago as Fokker's new aircraft for

the original Fi 1.2bn and notes that the gavernment money is are based on existing designs insteed of completely original ones, they are supposed to be cheaper to make and lower in in the form of loans and guaran-tees and not grants. Bat the company would still like to strengthen further its balance sheet and is considering one or two sizeable share issues.

price. A total of 38 arders plus 31 aptions for the F-100 are in hand and 38 orders plus 10 optians for the F-50 bnt no new contracts have been signed this year. Fokker needs to sell be-tween 150 and 200 of each to recoup its F1 1.2bn in develop-ment costs and has planned a production schedule of 60 air-craft a year. At least part of the proceeds would be used to help finance a new production plant in the US that Fokker would like to build or buy in an attempt to compete better internationally. With sales spread rather evenly around the globe, the eerospace concern is already international ariented. But a deciding factor in possible US production could be the outcome of a huge order

After years of postponement due to busyant sales, produc-tion of both the F-27 and F-28 are being finally halted this from American airlines for as rom American airlines for as many as 100 F-100s. Last year Fakker lost a hid ta get a foothold in the North American market through the rescue of the ailing Canadian aerospace company, De Havil-lend through a conserving The year. Described as one of the most successful aircraft in

history, the F-27 has chalked up 786 sales in 63 countries over tha past 30 years. Since 1969 some 421 F-28s have been sold land, through a consertium. The Canadian Government-owned De Havilland eventually went to Boeing, giving the jumbo-jet Construction delays in the pair of new aircraft, though,

maker an entry into the increas-ingly competitive short- and believed to have played a role in Fokker's request-which was granted - for enother FI 100m in financial aid from m-haul marks The loss to Bosing did not

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EUROPEAN

the Dutch Government. The Ansterdam-based aircraft maker has received aircraft maker F1 800m from the Higgue to help cover development costs. Fokker insists that develop-ment costs have not exceeded would carry the risk of a prime

adapted for marine and defence patrol and surveillance. An order of that size would amount to between \$105m and \$140m for the standard aircraft ver-sion. It would also most likely involve Holfandes Sizearlerby In other acrospace develop-ments, the Netherelands agreed in March to participate for Fl 7.8m in the research project

is to get a chance et bidding for construction of the observation satellite itself.

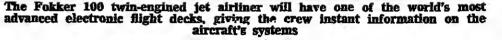
contractor while we would fulfil the role of a subcontractor," Mr Frans Swarttouw, Fokker's chairman, complained to e Dutch newspaper. Fokker is Durch newspaper. Fokker is, nevertheless, keenly interested in the propfan technalagy and has an in-bouse task force studying possible applications. Meanwhile, Fokker is said to be negotiating with Saudi Arabia for the possible sale of between six and eight F-50s adapted for marine and defence

involve Hollandse Signaalappa-raten, the military telecommonications subsidiary of Philips.

far a European Space Agency (ESA) satellite. Participation in the FI 160m research phase is mandatory if Dutch industry

Laura Raun

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The Italian-Brazilian AMX tactical fighter, powered by Rolls-Royce Spey engines, is being built jointly by Aeritalia and Aermacchi of Italy and Embraer of Brazil

Italy **Political bars** 

to merger THIS IS turning out to be an and third biggest Italian aero-eventful year for Italy's aero- space company, Aermacchi, had aero-space company, Aermacchi, had is 1985 sales of 1.240bn. Mence of the orders received by Aer-italia and Agusta are defence-vanies, related, while Aermacchi is re at totally defence-oriented. poli-The boom in exports of recent years appears to be over and certain projects under way, although beavily promoted have yet to echieve the orders y the to justify the investment. Take, olding for example, the Aeritalia-is in-Aermacchi programme to build bemo-the AMX light fighter and gusta ground attack aircraft. Brazil's faces Embraer has 30 per cent of the is 97 AMX projects and a production

# There's one company that's risen above mere nationalism

When the needs of the people of many nations coincide, mere national allegiances have to be put aside. Take defence, for example. A peaceful North Atlantic means security for the people of all the countries around it. And that demands a strong NATO.

· Today, that strength comes from the constant advance of technology. The kind of technology that European Helicopter Industries was formed to provide.

idustry, which heavily dependent on defence contracts from bome and

abroad. The two main companies, Acritalia and Agusta, are at the centre of a growing poli-tical row about whethar they should be merged to create e unified Italian business. The problem is that Acritalia is controlled by the IRI-Finneccanica state holding grown which in turn is in-

IRI-Finmeccanica state holding group, which in turn is in-fluenced by the Christian Demo-crat Party. The smaller Agusta helicopter maker, which faces other problems as well, is 97 per cent owned by the Efim state holding group. Italy's smallest such state group and close to the tiny Social Demo-crat Party. crat Party.

the AMX will be suitable holy just for their own air forces, but also for those af develap-ing constries. But the anly orders won so far are the 270 Prof Romano Prodi, the dynamic chairman of IRL realizes that it would make sense to bring the two ecro-space companies together. But his patrons in the Christian Democrat Patrix may not be his patrons in the christian Democrat Party may not be willing to risk the trade-offs in-volved in the political haggling which would be required to achieve what in other countries might be seen as intelligent and commentances industrial rationcommuter aircrait only by Aeritalia and Aerospatiale of France. The ATR 42, or Hummingbird, is designed to relieve long-suffering business fiyers in Italy. Orders have been picking up. Back in defence, Aeritalia is booing to translate the experisense industrial rationalization.

alisation. The year made an eventful start when Agusta was a mem-ber of the European consortium along with Aerospatiale of France and Messerschmidt of West Germany which made its unsuccessful rescue bid for Westland of the UK.

Not only was the Euro-bid beaten by United Technologies and Fiat, but Agusta and Fiat rowed in public at home over the issue. Once again, political rivalries infested the Italian acrospace industry, doing dam-

Age to all concerned. These problems notwithstand-ing, the industry did manage a healthy 1,660 trade surplus last year. Total industry turnover increased by 15 per cent to 14,500 bn. 4.500bn

14.500bm. Neither Agusta nor Acritalia are large when compared to swingles companies in France or Britain. In 1965, for samiple, Aeritalia's total con-solithing Junover came to L1.377bp, while Augusta's torn-over was L1.125bn. The smaller

German-Italian Tornado by pick-ing up e larger share of the planned European Fighter Air-craft (EFA) project. Agusta, meanwhile, is still collaboreting with Britain's Westland on the EH-101 naval helicopter. Some £650m has been spent on developing the EH-101. So far there are only 90 arders which are firm. EH-101. So far there are only 90 arders which are firm. There are ather examples of Italian zerospace companies working with one another, with foreign companies, and et times in rivalry with some of the same companies. That a restructuring of the industry would make it more effective appears logical. But the main problem it faces remains not technolagy or finance; it is the fact that its biggest companies are aften subject to political whims rather than industria lagic: Alan Friedman

AMX projects and a production line in Brazil. Italy and Brazil both hope the AMX will be suitable not

aircraft ardered by Rome and Brasilia.

One achievement, not in the defence area, is the recently-

completed civilian turbo-prop commuter aircraft built by

hoping to translate the experi-ence it gained on the Anglo-German-Italian Tornado by pick-

Alan Friedman

Two of the best known makers of helicopters have pooled their experience and resources into one truly international company with the resources and backup to design, develop and build the answer to NATO's naval helicopter needs for the 1990s and beyond. The result, EH101, is so advanced that it will be an extremely versatile military and civil transport, too,

European Helicopter Industries is the result of a highly successful collaborative venture between Agusta of Italy and Westland of Great Britain. It will benefit not only the employees and shareholders of the two parent companies, but also the people of Italy, Britain and the whole of NATO.

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XVIII

## Aerospace 18

clinch the deal

AUSTRALIA'S eerospace industry lost an excellent chance to prove its design capebility when the government decided earlier this year to buy the Swiss PC-9 basic trainer for the Royal

Australian Air Force insteed

of e locally-developed aircraft.

The Defence Department has ordered 67 PC-9s from Pilatus

at a fixed price of A\$230m (US\$140m) for delivery be-tween 1987 and 1991. The aircraft will gradually replace the current fleet of Macchi jet

trainers and New Zealand-built, piston-engined CT-4s.

The race loser was British-controlled Hawker de Havilland

controlico Hawker de Haviland which, together withthe Govern-ment Aircraft Factories, had spent et least A\$130m in design-ing and developing the Wamira A10B trainer to government specifications. It is doubtful if the Wamira will now he pro-

the Wamira will now he pro-duced commercielly but Hawker

### Australia

**Offsets policy brings benefits** 

Helienic Aerospace Industry (HAI) has developed a substantial overhaul and maintenance capability for military alreraft. Shown here is a Greek Air Force A-7H Corsair fighter undergoing maintenance

#### Greece

## Breakthrough parts deal

Aerospace Industry (HAI). Following the signing of a FFr 1bn contract in Paris in June, HAI is set to begin manufacture of a range of parts for the Mirage-2000 fighter aircraft, a significant expansion of its manufacturing activities which the Greek state zerospece concern has long heen anticipeting.

The Mirge-2000 contract is designed to offset part of the cost of a FFr 7.6bn purchase of 40 of the French jets for the Hellenic Air force. It runs to the year 2000, and set HAI participation at one half to one third of Mirege-2000 sales world wide. Under the terms of the contract HAI will make a variety of parts including sections of the aircraft wing, fuselage, and landing, nevi-gation and electronic rader

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fighter jets, which the Govern- HAI also signed a three year ment has decided on to com- contract with Dornier of West plete its modernisetion of the Germany valued at \$1.2m for air force. Offset negotiations the manufacture of parts of the currently under way with DC-228 aircraft.

THIS HAS BEEN a hreak-General Dynamics are expected In eddition the company, through yeer for the Hellenic to be completed by mid-antumn, whose \$400m plant established Aerospace Industry (HAI). So far, HAI's manufecturing in the 1970s with managerial Performance the complete the second se ectivities have included airbrakes for the Mirage-2000, Airhus doorframes, and, under a kick-off contract signed with British Aerospece last December, valued at \$12m, flap assemblies for the new Advanced Turbo-Prop (ATP) airliner. HAI's repair and maintenance

contracts cover a range of client countries both in the West and the Middle East company's success in the latter company's success in the latter region being owed partly, according to HAI, to Greece's close ties with the Arah world. Thus HAI handles Nigerian, Jordanian and Canadian Hercules C-130 transport air-craft, and J-79 engines for the US Air Force in Europe and the Royal Air Force.

gation and electronic rader systems. HAI hopes to win. similar offset work from the purchase of 40 General Dynamics F-16 F-1 and Atar engines. In June

and technological help from Lockheed International repre-sents one of the single largest industrial investments in Greece, saves the state millions of design and that it still needed to learn from the more sophistiof dollars each year in vital foreign exchange by handling cated Western manufacturers. repair and maintenance for the Hellenic Air Force, and to a more limited extent the state

carrier Olympic Airways. HAT's role as a foreign ex-change earner and saver coun-ters, in the management's view, the fact that the company is running et a loss. HAI is in any case proud of heving trimmed losses from Drachmas 1.3bn in 1981 to Drachmas 15m in 1985. The company's foreign debt has also been balved in the same period, from \$320m to \$163m, and the ratio of own to borrowed capital improved from

with 1:14 to 1:9. The company, which employs 3.200. bas been all-Greek since terminating the contract with Lockheed nearly two years ago, a move designed to "Helenise" HAI as much as to save some \$300m a year in salaries.

After taking

Andriana Ierodiaconou

craft design.



worth A\$500m awarded last May to United Technologies of the US. The order was won in the face of strong competition from France's Aerospatiale which offered its Super Puna helicop-

Financial Times Tuesday August 26, 1986

The first contract was for 14 Sikorsky Black Hawk helicop-ters which eventually will re-place the Royal Australian Air Force's Bell Iroquoi UE-H helicopters. The Air Force plans to acquire up to 100 new heliconters.

19. A. A.

The second contract, worth A\$188m, is for an additional ASISSM, IS FOR an additional, eight Sikorsky Sca Hawku for the Australian Navy, which al-ready has eight of these beli-copters. Mr Kim Beasley, the Defence Minister, said the two contracts would generate ANOV in your work for the contracts would generate A\$120m in new work for the Australian aerospace industry. Earlier this year, the Defence Department also awarded a As29m order to Italy's Selettia Elettronica for two airfield sur-veillance radars. Selettia had veillance radars. Selenia had agreed on Australian partici-pation in the design and manufacture of the equipment, Mr Bearley said. Apart from passing on part of

the radar-related work to local companies, Selenia had also asked hs Australian partner, Ansett Technologies, to manu-facture and programme two eutomated test stations for the maintenance of the radars.

**Emilia** Tagaza

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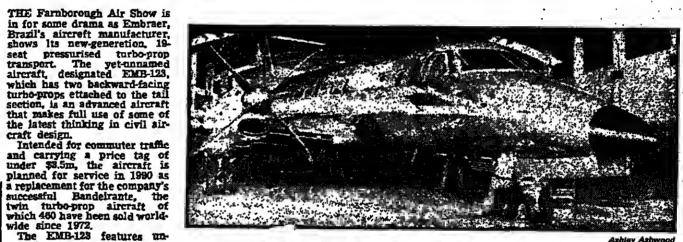
Australian Airlines, formerly Trans Australia Airlines, is spending more than A\$1bn on new aircraft, including 12 Boeing 737-300s, the first of which (seen above) has now been delivered

AND RAMAN

As a consolation to Hawker, from the offsets policy, in terms tive advantage, including air-it was awarded the contract to of both contract value and tech-build the aircraft under licence nology transfer. The Defence from Pilatus, e condition Department and the govern-Pilatus agreed to in order to ment-run arilines are currently Under the two-airline agreement, AA and Ansett have monopolies over major interon e buying spree for aircraft

Testestes)

## Latest thinking in unorthodox turboprop



A Brasilia airliner nears completion at the Embraer factory

Bros of Belfast to equip Britain's Royal Air Force, is making inroads in Latin American markets as well. Venezuela has received four out of 30 ordered as part of a hl-national countertrade arrangement,

In late July, Peru signed an order for 20 Tucanos with Brazilian Government financing. The trainer costs \$1.25m to \$1.45m depending on the equipment specified.

Because of initial industrial snags in production of the Brasilia, Embraer may find it difficult to reach this year's export sales target of \$287m, double last year's performance. But thanks to improved inter-national sales and strong demand domestically for small private aircraft, total sales are expected to reach \$350m, resulting in a projected return



## Aerospace 19

#### Singapore

# Big increase in sub-contract work

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small components to overseas aerospace manufacturers,

The skills of the Singapore workforce and the encourage-ment of the Singapore Govern-ment led overseas aerospace companies some time ago to companies some time ago to sub-contract component and equipment manufacture and assembly to companies in the republic. Today this business provides substantial employent, and makes a significant contribution to the country'a

Primarily involved in this business is Singapore Aircraft Industries (SAI), formed early in 1982 as a government-owned industrial group under control of the Ministry of Defence'a Sheng-Li Holding Company. It has five wholly-owned and two jointly-owned aubsidiaries, and an overall workforce of some

Dr Habibie is so obsessed craft and as a possible locati with building up this high-for component manufacture, technology end of the Indo-nesian economy that he lives broke out between the America

ALTHOUGH IT lacks the heavy industrial infrastructure neces-sary for the manufacture of complete aircraft, Singapore (SAM), Singapore Aero-Com-ponents Overhaul (SACO), and Singapore Aero-space Ware-housing and Supplies (SAWS). The jointly owned ventures are Singapore Aero-Engine Overhaul, maintenance and re-furbishment facilities; and by supplying electronics and other complete components to overseas

Collectively, the SAI group has a combined experience of more than 20 years in the aviation industries. The group offers a range of products and services that spans higher-echelon maintenance, and the repair and refurbishment of aircraft such as the C-130 Hercules, A-4 Skyhawk, Hunter jets, Strikemasters, and US Beli and French Aerospatiale helicopters. It also offers overhaul and

servicing for aircraft-related components, airborne radio, navigational and instrument systems, telecommunications, defence, electronic and weapons systems; test-equipment calibra-tion; and the manufacture of aircraft parts and assemblies. Singapore's growing interest in gerospace is indicated by the fact that, last January, the third attractive environment

"The new suns rising in the region bave not escaped the 2,000. The wholly-owned companies exhibition was the biggest yet. attent are Singapore Aerospace Main-Several hundred companies giants tenance Company (SAMCO), from all over the world exhibi- trada Singapore Electronic and ted; making it the largest aero-. than attention of the world's trading giants. In 1983, the US-Pacifie

space exhibition in the Far East and South-East Asia although the Indonesian air show is now a close rival. Most of the western world's major aeron This situation applies to aerospace manufacturing as well as civil air transport, Many major western world's major & 200 space manufacturers attended. One reason for this success apart from Singapore's growing-direct involvement in aerospace engineering, is that the Far East, and the south-east Asian and Pacific basin as a whole, is the world's factor growing western aerospace companies how retain offices in Singapore, and have direct links with the growing Singapora aerospace industry. Others plan to, and tha blennial Singapore exhibi-tion has had much to do with this. It is proposed to hold the next one at Changi Airport from January 27-31, 1988.

and Pacific basin as a whole, is the world's fastest growing region in civil aviation. It is des-cribed by Mr Cheong Choong Kong, managing director of Singapore Airlines, as the "future dynamo of the inter-national civil aviation industry.", "It has not only become the focus of growth, but also the catalyst for growth beyond its own boundaries." be says. "Over the past 20 years, Asia-Pacific has been the world's fastest-growing region." "It's newly-industrialised countries, spearheaded by Japan, have emerged as major trading forces. All of the region's economics are vigorous, export-orientated, and dedicated to expansion. They provide an It bes been recognised that It bes been recognised that this form of international acrospace collaboration is the swiftest method of developing bigh-technology skills, thus helping to promote the econo-mic well-being of the country. At the same time the Chapter At the same tima, the Changi Exhibition brings together the aerospace exports of other countries with an interest in the entire Asia-Pacific arena, with the spin-off effect of promoting Singapore as the focus of aerospace development in the region.

The country faces con-isiderable competition, however. Neighbouring Indonesia is already rising rapidly as an to expansion. They provide an for foreign investment as well as trade in general. indigenous aircraft manufac-turer, especially of light transport aircraft. And the Japanese aerospace industry is a for-midable force in world markets, was 24 per cent greater midshle force in world markets, the US-Europe trade, especially since it has the cash

having surpassed the latter in available to buy its way into 1978." new western aerospace pronew western aerospace pro-grammes, such as the projected Boeing 7J7 prop-fan 150 seat airliner. Malaysia, too, is increasingly interested in promoting its aerospace industry as a potential major contri-bution to the economy. Overshadowing everything in

far eastern aerospace is the growing power of the People'a Republic of China, which, over the past two to three years, has been arranging co-production and other deals with western aerospace manufacturers with a view to modernising its own

industry. Singapore recognises that, with its own limited population and financial resources, it is never likely to become involved in large-scale manufacture of indigenously-designed aircraft, especially in the light of today's rising research, development and production costs, at least on a directly competitive basis with Japan and Communist industry. with Japan and Communist China.

But, as a major supplier of equipment, components and sub-assemblies, and as a major overhaul, maintenance and re-furbishing centre for both civil and military aircraft, it is already a major force in the Asia-Pacific region.

Michael Donne

Final assembly of a Jaguar jet strike-trainer, built under licence by Hindusthan Aeronautics of Bangalore

#### India

## Merger to bring savings

doot, which flies the smaller regional routes, is also expand-INDIA'S AVIATION is poised for major structural changes in the next year or two following the government's decision to merge Air India, the international carrier, with the domes-tic Indian Airlines. The complicated work involved in the amalgamation will probably take more than a year but, expansion. after it is completed, economies

worth about Rupees 1bn are expected. Both companies are doing

well, even at a time when most of the world's airlines are going through a difficult phase. Air India made a record profit of about Rupees 650m in 1985-86. partly from its lucrative Gulf rontes, and Indian Airlines made a profit of Rupees 587m. The reason for the merger decision is the need to reduce nverbeads and 'avoid duplica-

tion of operations, particularly in maintenance and engineering workshops. There is also a great the 412 helicopter. deal of complementarity be-IPTN has an arrangement tween them, especially now that with General Electric to set up Air India bas recently added the

Airbus A-310 to its fleet. Indian Airlines already uses the Airbus A-300 on its main trunk routes in the country and on some of its services to neigh-bouring countries. Earlier this year, it signed a \$1ba contract with Airbus Industrie for 19 Airbns-A320s (with an option for 12 more), and this will give both airlines aircraft made by the same company.

Staff and other economies agreement was reached in July, should be possible as a result. The aircraft is the MiG-29, code-

although some resistance from named Fulcrum in the West, trade unions is likely. which so far has been flown India's third airline, Vayu- only by the Soviet Air Force.

So far. Hindusthan Aeronau tics has made only the improved version of the MiG-21 in its Version of the MIG-21 in its three plants that form its MiG complex. Now that the Indian Air Force has decided to make the MiG series its basic aircraft for a decade, newer versions are to be added. The air force is elready flying the MiG-23, MiG-25 and MiG-27, and will

XIX

These are already being maintained and serviced in the country and their manufacture under licence from the Soviet Union has been agreed. Actual plans for production of particu-lar aircraft will now be worked out according to Russia's willingness to transfer technology for the latest MiG-29.

Hindusthan Aeronautics is already assembling the Jaguar under a deal with British Aerospace but plans to manu-facture the Mirage 2000 (40 are to be bought outright and a deal for a few more is expected to be signed soon) have been

abandoned. Hindusthan Aeronautics says that its plans to develop its own "light combat aircraft," which will be used in the 1990s, are on schedule. The airframe has on schedule. The arritane has already been designed but until India can make its own gas-turbine engine (coded GTX), the aircraft will be powered by an imported engine.

In the running for this con-tract are General Electric's F404 and the Rolls-Royce RB-199.

K. K. Sharma

**Commercial battle over military contract** 

Indonesia

HIGH ambition in the Indonesia newest aircraft, stand between a typical product of the Habibie acrospace industry has its roots the piles of documents which in a decision by President he surrounds himself with dur-At the time of writing it in a decision by President he surrounds himself with dur-Subarto in the early 1970s to ing his long working day. Seemed likely that Indonesia launch the country directly Ten years after the establish-working the transformation of the Nurtanio aircraft only after the US manufacturer orbit. Now, after a 15-year factory in Indonesia, Indonesia was forced to fight-largely on record nf achievement on a scale which few might have national air show-again with thought possible, the growing more success than most aerospace industry is tightly observers believed likely. The main result has been a

aircraft technology for Indonesia; his second centres woven around the unusual per-sonality of Dr B. J. Habible, heightening of international indonesia's Minister for Re-interest in Indonesia as a "scarch and Technology." on local component manufacture at the most sophisticated level. market for high-technology air-craft and as a possible location for component manufacture. The commercial battle which broke out between the American F16

and breathes aeroplanes. The F-16 manufacturer General show was a reported offer by Indonesia as the Tetuko and in desk in his Jakarta office is Dynamics and the maker of Panavia—the joint venture be-crowded with models of ad-vanced aircraft. Design charts Dasault Bregnet, was largely and Italy—to manufacture the MBB of West Germany for the of the CN-235; Mr Habibie's as a result of the air show and Tornado jet fighter under production of the BO-105 beli-

is still in its early stages. The most recent development

in the industry was an agree the US for the pr ment between Boeing and the the 412 belicopter. Indonesian Nusantara Aircraft IPTN has an a Manufacturing Co., or IPTN, the new name for the Nurtanio Company, signed during the air show. This involves Boeing taking Indonesian hardware in

return for its aircraft. Indonesia already has agree-ments with five international groups for the local production of a range of aircraft. The latest involves co-production with Casa of Sprin of the jointly-designed CI-235, known in Indonesia as the Tetuko and in

licence in Indonesia, But this copter; with Aerospatiale France for the Superpuma AF 332 belicopter, and with Bell of the US for the production of

and operate the universal en-gine maintenance centre in Bandung, the west Java site of IPTN's main factory. The centre

is expected to be in full opera-tion by 1988, IPTN also has manufacturing arrangements with the domestic Indonesian airline, Merpati Nusantara Airlines.

IPTN's Bandung aircraft works are already connected with largely unpublicised re-search into missile production at a separate but nearby

facility Michael Byrnes

ing fast with its fleet of Dorniers, Fokkers and the Indian-made Avro. It is now examining offers from many countries, including France, Britain and Sweden, for small 40-seat aircraft for further Mr Harsb Vardhan, Vayusoon acquire the MiG-29. doot's chief executive, expects to wipe off the airline's accu-

mulated losses of about Rupees 20m within the next two years. To the 52 destinations on 34 routes. Vayudoot plans to add another 44 this year, to increase its operations substantially. Two major developments will

add to India's growing aviation industry. The government bas established a helicopter corpora-tion based on Westland W-30s and Aerospatiale Dauphins, These will belp the Oil and Natural Gas Commission's off-

shore operations as well as provide belicopters for use inside the country. The government has also decided to permit the use of air taxis in India. These will be based on small executive aircraft already available and so no foreign exchange purchases will be involved. This should fill a long-felt business need for

chartering small aircraft. Militarily, the government-owned Hindusthan Aeronautics is gearing itself to make the latest of the MiG series-



Proven performance. Setting new standards for high reliability and less maintenance. Substantially lower life cycle costs.



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### Aerospace 20

## China Links with the West increasing

THE People's Republic of China will be sending a big mission to the Farnborough Air Show. While the Chinese will bave

XX

an exhibition in the big covered ball on top of the hill over-looking the runway, which is expected to indicate some of the capabilities of the Chinese aerospace industry, the mission's primary aim will be to discuss with a wide range of Western aerospace industry representatives bow they can work to-gether in the years shead, to their mutual benefit. The Chinese team will in-

clude representatives of China Promotion, China Aviation Sup-Promotion, China Aviation Sup-plies Corporation, China National Electronics Import-Export Corporation, China National Aero Technology Im-port-Export Corporation (Catic), China North Industries Corpora-tion and China Precision Machinery Import-Export Cor-poration. poration\_

Such Chinese missions bave been seen increasingly et Western air shows in recent years, reflecting the expanding interest in what the West bas to offer technologically in aerospace. The missions also show a readi-

industry depended on the manu-facture under licence of designs origineting in the Soviet Union — before the political rift of 1960 and then the Cultural Revolution, which also affected the aerospace industry with its anti-technology bias.

This dependence on old This dependence on old equipment were invited to Soviet designs continues, and is still to be seen across the spec-trum of Chinese aerospece activities, including fighters (such as the Shenyang J-8 air-superiority aircraft), bombers (such as the Shenyang J-8 air-superiority aircraft), bombers (such as the Shenyang J-8 air-superiority aircraft), bombers term aerospace con superiority aircraft) area of that exhibition, bu because of some long, ba patient salesmanship bu term aerospace con (such as the Xian H-6 based on the Tupolev Tu-16 or Bedger), and the Hanzhong Y-8 four turbo-prop transport derived from the original Antonov An-12.

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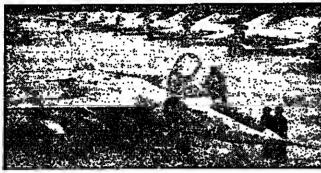
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DC D ( L 'nC '0' vio undertake development from designs other than a Soviet origin bave yielded the Sbang-hai Y-10 four-jet transport.



The Chinese Shenyang F-6 fighter, based on the Soviet Union's Mig 19 design (below) and the Boeing twin-engined 767-200 ER (Extended Range) airliner for the **Civil Aviation Administration of China.** 



The State aircraft factories are loceted principally at Shen-yang, Xian, Shaanxi, Harbin, Shanghai, Beijing, Nanchang and Chengdu. For the early part of the post Second World War period, the industry depended on the manu-visited.

This was apparent at the major Chinese aerospace exhibition. China Aviation Expo '84, in Beijing at which Western manufecturers of all types of The agreement with McDon-nell Douglas involves also the establishment of a joint task aerospace and civil avaition equipment were invited to show

force to carry out engineering and market feasibility studies, Not only as a direct result of that exhibition, but also because of some long, bard and patient salesmanship by Weseimed at the co-operative development of other new airliners for the future, while also providing for continuing efforts tern aerospace companies, Chinese purchases of foreign-built civil aircraft beve ex-panded considerably over the exports trade. past 18 months.

Major deals bave included 

in China including some parts for the BAe-146 regional jet airliner. The eventual number of MD-

80 type aircraft the Chinese will build is not known, but it is recognised that with that country's growing civil air transport industry, its demands through the rest of this century for transport aircraft will run into many bundreds of ail types, ranging from small turbo-prop feeder-liners through to big, longer-range types. The Chinese industry is already showing a strong integrat in the comparison property.

interest in the emerging prop-fan form of propulsion. The Shanghai Aviation Industrial Corporation has already linked with McDonnell Douglas in the latter's plan to develop the MD-91X prop-fan airliner for the early 1990s.

Also, more recently at the Hanover Air Show, it was announced that the Catic organisation bad signed an agreement with the West German Messer-schmitt-Bolkow-Blohm to cooperate on the development of a 75-passenger commuter-sized

prop-fan airliner, the MPC-75. The aim is to undertake a feasibility study by mid-1987, and the partners will then decide whether the market will support full-scale development. The view is that it most likely will, for it is estimated that the world market for aircraft in the 70 to 90-seat passenger size will amount to more than 900 aircraft by the early 21st century, with China itself likely to need about 250 such aircraft. This interest in the prop-fan

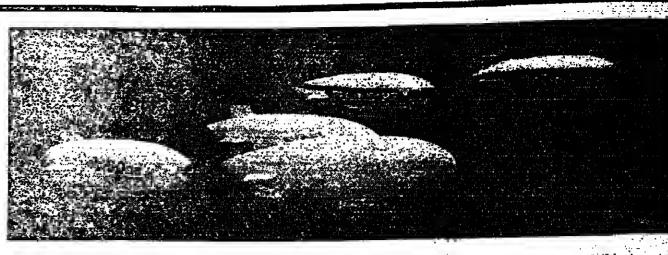
The McDonnell Douglas deal, involving 26 MD-80s with an option on another 14, is especi-ally sigoificant for it involves 25 of those aircraft being assembled in Shanghai, at the factory of the Sbanghai, and in Sbanghai. The first Shanghai-assembled aircraft is due to enter service in 1987. indicates thet Chinese aerospace planners are alert to the most recent developments of the Western aerospace industries, and are anxious to get some part in them.

Other manufacturers besides McDonnell Douglas and British Aerospece are anxious to get footholds in the Chinese market, both through direct sales to Chinese airlines (especially as more of these are emerging nuder the reorganisation of air transport in that conntry) and through the manufacture of expand China's eviation parts and equipment.

The McDonnell Douglas- Thus, the sales teams are and due to make its maiden Chinese deal was the first regularly visiting China in flight lete next spring-example of a large-scale co- growing quantities, and it is This craft will be the first in

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Impressive line-up of airships built by Airship Industries of the UK shows how production of this type of craft is now expanding, both in the UK and the US, where the company has bases

#### Airships

## Expansion in uses and technology

THERE ARE many companies, cal in various parts of the world, A involved in the maoufacture of AII balloons (either manned or unmanned), and other types of lighter-than-air craft for a wide variety of uses.

However, the two companies most actively engaged in the development of airsbips—that is, manned, powered and steerable craft capeble of carrying passengers and cargo payloads —are Airship Industries of the UK and Goodyear Aerospace, a wbolly-owned subsidiary of the Goodyear Tire and Rubper Company of the US.

Goodyear bas been involved with airsblps (which it calls Blimps) for many years, and has built over 300, more than eny other company in the world, of which over 250 bave been for the US Army and Navy, and the rest companying are to

the rest commercial craft, Goodyear currently operates several non-rigid airships for public relations and sales pro-

motion activities, of which the four most recent are the America (N3A), Columbia and Europea (N2A) and Enterprise (NIA).

Goodyear of Akron, Ohio, is now constructing a major new advanced technology airship, called the GZ-22, a nine-passenger craft designed to fly at a speed of about 65 knots, and due to make its maiden flight late next spring the world to use gas-turbine power, with two Allison 420 hp

turbo-propeller engines. It will also include a new electronic control system which replaces Michael Donne the usual mechanical control wires with lightweight electri-

connections Airship Industries, known as AIL, set up in the UK in 1978, is now owned 49 per cent by Bond Corporation of Australia,

with Westinghouse Electric of the US holding 3 per cent and Ansett Transport Industries of Australia e small percentage, and the rest in the hands of institutional and private investors,

The Westinghouse interest is part of an overall \$8m deal agreed earlier this year whereby a "joint venture" company was set up in the US by AIL and Westinghouse to pursue military and other business.

A comparable joint venture A comparable joint venture company bas been set up with Ansett Transport Industries, called Asian Pacific Airships, to market airships in the Pecific Basin region. All's philosophy is to create further such companies where it can so as to exploit the overall potential of airships as widely as possible. AlL itself has to date built

All liser has to date built two separate types of craft— the Skysbip 500 and the larger Skysbip 600. The Skyship 500, which first flew in 1981, is a four. to six-passenger craft, with a maximum speed of about 55 knots and an endurance (et a cheed of 90 knots) of short a speed of 30 knots) of about 19 bours. The larger Skyship 600, which first flew in 1984, is a 12- to 14-passenger craft, with a maximum speed of 60 knots and an endurance of about 24 bours.

ALL says its Skyhip series has been designed to make extensive use of advanced lightweight high-strength. materials such as Kevlar, glass-

reinforced plastic and boney-comb sandwich composites. The envelope material, a bigh-strength, low-permeability poly-ester, was developed specific-ally for this range of airships. The use of non-combustible helium as the lifting gas bas eliminated the dangers associ-ated with the earlier use of hydrogen. Recently, AIL bas also sub-mitted a bid to the UK Ministry of Defence in the competition to find an alternative to the delayed Nimrod Airborne Early Warning (AEW) aircraft.

The company is proposing the use of a 100-ton airship which it claims could stay on station for three or four days at a stretch, and have operat-ing costs of only about one-third of a conventional airhydrogen. Power in the Skyship 600 is

provided by two turbo-charged Porsche engines, driving five-bladed variable pitch propellers in ducts on either side of the craft. AIL is concentrating a significant volume of its resources on its bid for the big \$4bn-plus US Navy contract for an oceanic passenger gondola, slung beneath the craft's hull

beneath the craft's hull. The ducts surrounding the propellers serve to reduce pro-peller noise levels both in the gondola and on the ground, while also improving safety for ground crews and boarding pas-aengers, and increasing overall propeller efficiency. ATL, with bases at Cardington, Bedfordshire, and Weeksville. feet surveillance airship, under the Nevy Airship Programme, or NSP, for which both Good-year and also Boeing of the US are bldding. This programme calls for a large "forever-on-stetion" craft

for overbead surveillance of the fleet, with the airships carry-ATL, with bases at Cardington, Bedfordshire, and Weeksville, North Carolina, now bas the largest fleet of airships flying, with e total of nine Skyships operational in the US, Europe, Australia and Japan, another (a Series 600) nearing comple-tion, and two more awaiting assembly. ing giant antennae capable of detecting incoming cruise missiles.

tinghouse in their joint bld for this contract will be submitted to the US Navy soon, in response to e "Request For Pro-r ssais." The US Navy will then assembly. The company has sold its Skyship 600 craft to Resorts International of Atlantic City, take some time to evaluate the proposals from all parties, and a decision may come either later International of Atlantie City, New Jersey, and to Swan Tele-vision of Perth, Western Aus-tralla—the latter craft, which made its maiden flight in May, this year, will be used exten-sively as a camera platform during the America's Cup yacht races in 1987, AIL has sold a Skyship 500 to Japan Airship Services, a subsidiary of Japan Air Lines. The other craft it uses itself. this year or early in 1987. Whoever wins that contract will be assured of a major airships production programme lasting many years, quite spart from the substantial boost it will give to the ultimate deships.

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